

# User's Guide



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**CL550 - SOFT**  
**Software Packages**



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The information contained in this document is believed to be corrected but OMEGA Engineering Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

**WARNING:** These products are not designed for use in, and should not be used for, patient connected applications.

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# 1 GENERAL

Standard Agencies and Quality Auditors require the collection, organization and analysis of traceability documents. **CalpMan 2000 (Calibration Procedure Manager)** is the software package able to manage all the calibration activities as required by the regulations. Using the Windows 95/98/NT™ software, it is easy to set both simple and complex testing procedure using different instruments. It is possible, using the standard instrument drivers, to use all of **OMEGA** temperature, pressure, and signal calibrators to test instruments in your laboratory and process.

You can set the complete calibration procedure on PC, save and recall it every time you want; and run the procedure in laboratory synchronizing the instruments using RS232, save data in the Hard-disk and print the documentation to show the results in compliance with ISO 9000 requirements.

The main features of **CalpMan 2000** are:

- Complete Tag identification and historical documenting of test results;
- Many testing procedures for each defined Tag;
- Many Test points;
- Reference and Tags error limits programming;
- Up to two RS232 connections for multiple instruments control;
- Standards database;
- Calendar for calibration due date.

Benefits to be gained from this system are:

- Optimisation of the maintenance period. By keeping a record of the time required among necessary adjustments, the optimum maintenance period can be determined.
- Print of the Certificate; a test report can be printed for each TAG.
- Aid in maintenance planning. Data can be used to analyse the time and cost required for instrument calibrations and can help in planning manpower, specifying supplier, etc.

Test and calibration data are memory stored in a Microsoft Access database in PC Hard-disk to document the calibration activity. This allows operator to build the Quality control chart/data bank from a single calibration sheet to a detailed historical report.

Each instrument, called "Tag", to be calibrated/inspected is identified by name, model, manufacturer and serial number.

In you calibration procedure you can use external reference instruments (non OMEGA units, or Tc, or Rtd). The software allows you to define these standard and to include their descriptions on the calibration report.

Calibration procedure can be performed either in automatic mode (Reference and instrument are connected using RS232) or in manual mode (values entered using keyboard).

## 1.1 Setup

**CalpMan 2000 (CL550-SOFT)** runs on IBM PC under WINDOWS 95®. Minimum requirements are a Pentium CPU with 16Mb RAM and 10 Megabyte free on hard disk, Colour monitor and Microsoft mouse or compatible one.

In order to install the package, proceed as follow.

- Place the **Calpman 2000** CD-ROM inside the drive on your PC;

Follows the below procedure to install the program:

- From the Windows "Start" Menu, select **<RUN>**;
- Enter the filename D:\Disk1\SETUP.EXE (substitute the letter D for the disk drive that contains **Calpman 2000** CD-ROM);
- Follow on screen instructions making sure to provide the correct path to your **Calpman 2000** directory when prompted.

Once installed, the **Calpman 2000** icon will appear on your Windows "Start" button and it will be possible to boot it by clicking on the icon as usual.

## 1.2 Manual or Automatic calibration

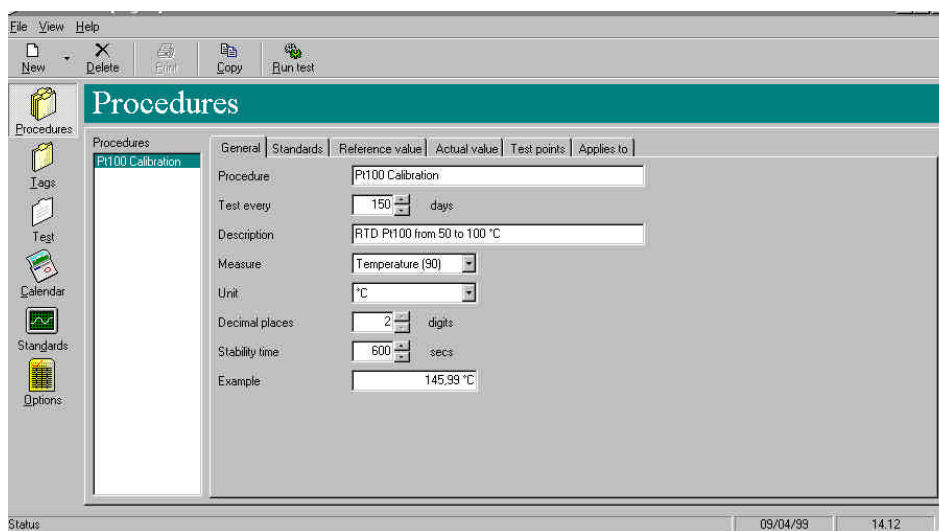
**CalpMan 2000 (CL550-SOFT)** is designed to work as a stand alone calibration procedure manager. You can program your calibration procedures for any instruments you have.

Two different calibration mode are available to match all your needs: Manual or Automatic mode.







- In manual mode, you can input by keyboard the reference and/or the Tag measured value. This mode can be used when you have analogic instruments or digital non compatible with OMEGA serial protocol.
- If you have an OMEGA calibrator (all Unical and MicroCal units are compatible), you can use RS232 serial interface to program its output or read its input. **CalpMan 2000** will communicate directly with the instrument and make your calibration certificate free from manual input errors.

## 2 Program architecture

**CalpMan 2000 (CL550-SOFT)** has a typical Windows structure with a series of menu and options that can be recalled by clicking on the name, or on the icon which represents the action the user wants to carry out.

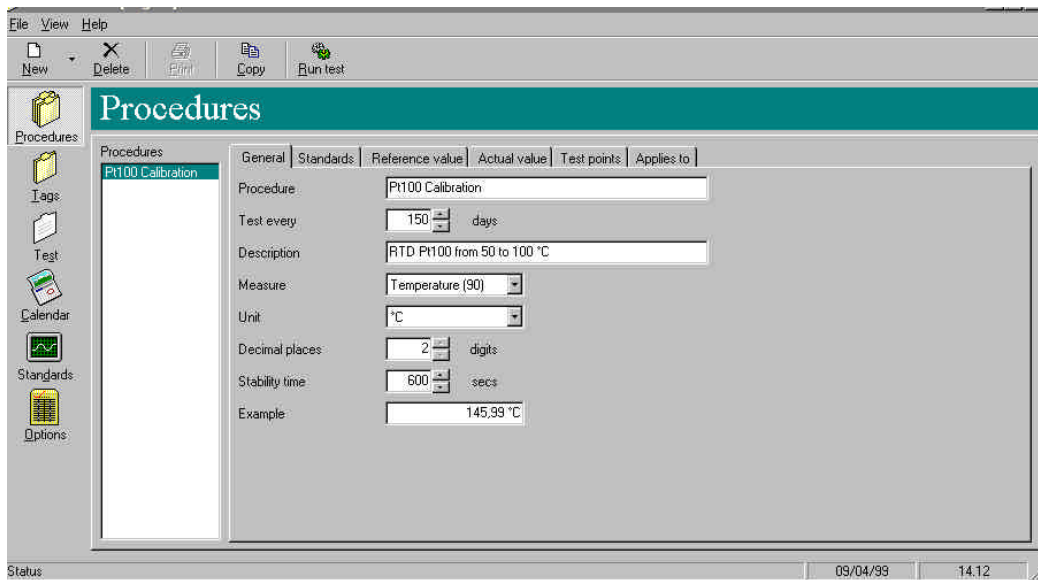



All program options are available using the main menu bar. The button functions are the following:

	This option allows you to program the calibration procedure. You can input all general information, instruments used as standards, calibrators used as simulator and as reader, test points and error limits, Tags.
	This option allows you to add, delete, modify all Tag's information: name, Manufacturer, model, S/N, and applied calibration procedure.
	This option allows you to review and print calibration procedure results database.
	This option shows the calibration due date for all Tags. When you calibrate the instrument, the date will be changed by the software for the new expiration date.
	This option allows you to set all information about instruments used as reference in calibration activities.
	This option allows you to edit al header and footer for your calibration reports


### 2.1 Calibration Procedures

This is the core of **CalpMan 2000 (CL550-SOFT)**. Using this option, you can program all data for a new calibration procedure.



Create a new procedure is easy by pressing the  button and selecting the “Procedure” option. The procedure windows will be displayed. All fields assumes the pre-set values. You can modify procedure data for compliance with your testing procedure.

Edit a procedure is possible by selecting the procedure name and changing the values directly on the windows. All changes will be stored automatically in the PC hard-disk.

Deleting a procedure is possible by selecting the procedure name and pressing the  button.

The *procedures* data are divided into 6 forms: General, Standards, Reference value, Actual value, Test points, and Applies to.



#### GENERAL:

The procedure main information should be inserted in this form: Procedure name and description, calibration validity period (this value will be used by CalpMan to update the calibration due date for the Tag), type of measurements (Pressure, Frequency, Temperature, current, etc.), engineering unit, number of decimals, stability time (the procedure will wait for this time before make the measurement from Tag).

#### STANDARDS:

Up to 4 external standards units can be assigned to each procedure. This units will be printed on your calibration reports. You can select between the available in “Standards” option (see paragraph 2.5).

#### REFERENCE VALUE:

This form allows you to define how the reference values can be input by program: Manual or automatic (by calibrator) mode.

In manual input mode, the reference values are input by typing the values using the keyboard. This operative mode can be used when the calibrator used is not an OMEGA unit.

In calibrator input mode, the reference values are read by an OMEGA calibrator using the RS232 serial interface. Select the used unit and the communication parameters. The "calibrator function" mode can be selected program the unit as generator or as meter.

#### ACTUAL VALUE:

This form allows you to define how the actual values (measured from the tag) can be input by program: Manual or automatic (by calibrator) mode.

In manual input mode, the actual values are input by typing the values using the keyboard. This operative mode can be used when the Tag used is not an OMEGA unit.

In calibrator input mode, the actual values are read by an OMEGA unit using the RS232 serial interface. Select the used unit and the communication parameters. The "calibrator function" mode can be selected program the unit as generator or as meter. If meter mode is selected, you can choose to read the data directly or linearized (e.g. 4-20mA to 0-100mbar).

#### TEST POINTS:

This form allows you to program all procedure test points and limits of errors. Input all test points values, then choose for full scale error or for of reading error input. Two kind of error can be input: Reference error and Actual error.

Reference error is the maximum error band for the generated values. The Procedure will not accepted the generated value if it is outside the band.

Actual error is the maximum error band for the measured values. The Procedure will mark the value as fault if it is outside the band.



Press “Generate Error Data” button to calculate the error limits.

Test point	Error reference value	Error-actual value
0,00 °C	1,50 °C	1,50 °C
50,00 °C	1,50 °C	1,50 °C
100,00 °C	1,50 °C	1,50 °C
150,00 °C	1,50 °C	1,50 °C

☒ Full Scale  
☐ By Value

Scale Range:  to   
 Reference Error:  Measure Error:

APPLIES TO:

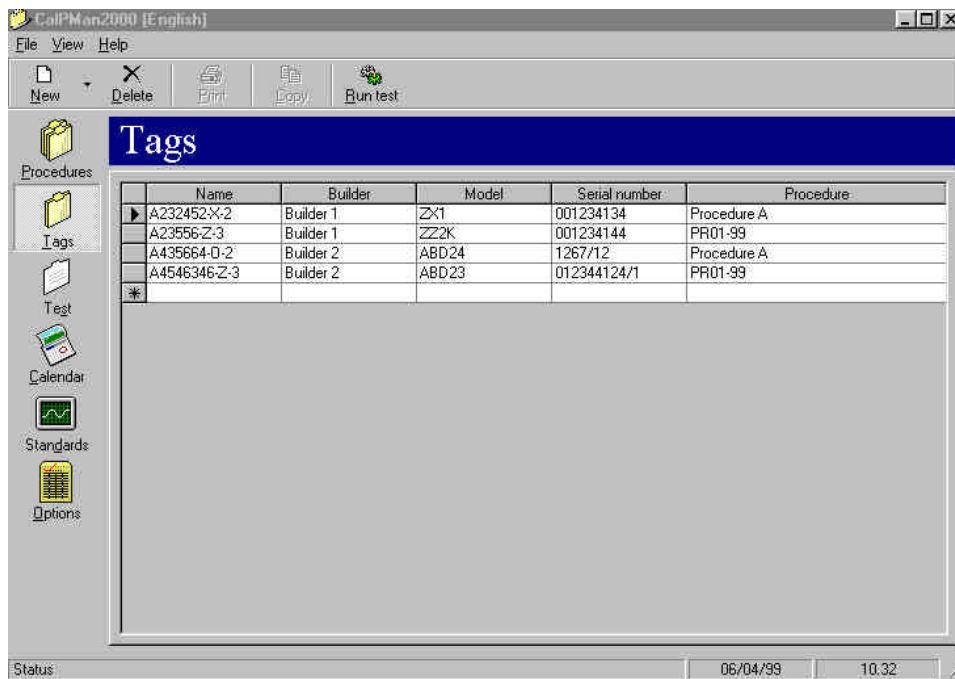
This form allows you to input the Tags to be assigned to the calibration procedure. You can input the following information: Name, Manufacturer, Model and S/N. When you insert a new Tag to the procedure, the calibration due date will be automatically set to the currency day.


You can also add a new Tag using the “New Tag” function in “Tag” option.

Name	Builder	Model	Serial number
A23556-Z-3	Builder 1	ZZ2K	001234144
A4546346-Z-3	Builder 2	ABD23	012344124/1

## 2.2 Tags

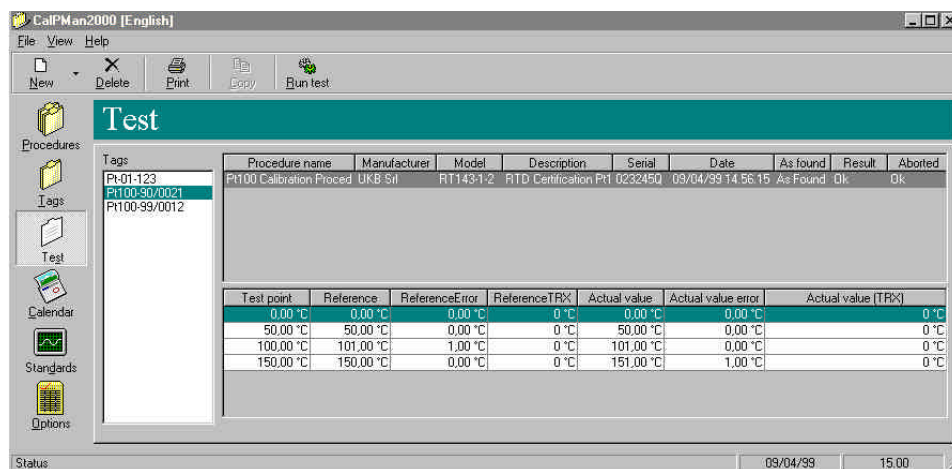
This option allows to edit all entered Tag information. You can read all units information and the procedure assigned. If no test procedure was performed for the Tag, you can modify all parameters. If a Test procedure was done, you cannot change the assigned calibration procedure.




To delete a Tag, you have to select it using the mouse and then pressing the  button.

## 2.3 Test

This option allows you to browse the previous testing data and to run a new test procedure. The column on the left of the window shows the Tags list. Choosing one Tag from list, it will be shown (if existing) the performed tests ordered by date.

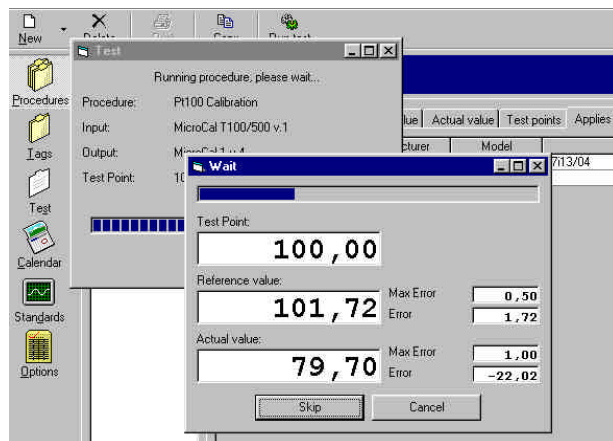


To perform a new test procedure, you have to select the Tag and then to press the  button. The following window will be displayed:

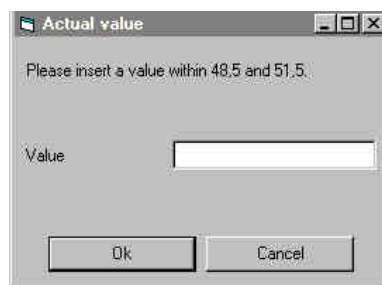
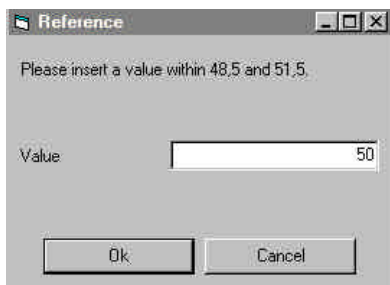


Make all electrical connections and connect, if programmed, the RS232 connection cables. Press the "OK" button to run the procedure.

If RS232 serial communication is programmed for Tag and Reference units, you have only to wait for procedure ends. The following monitor windows will be displayed:

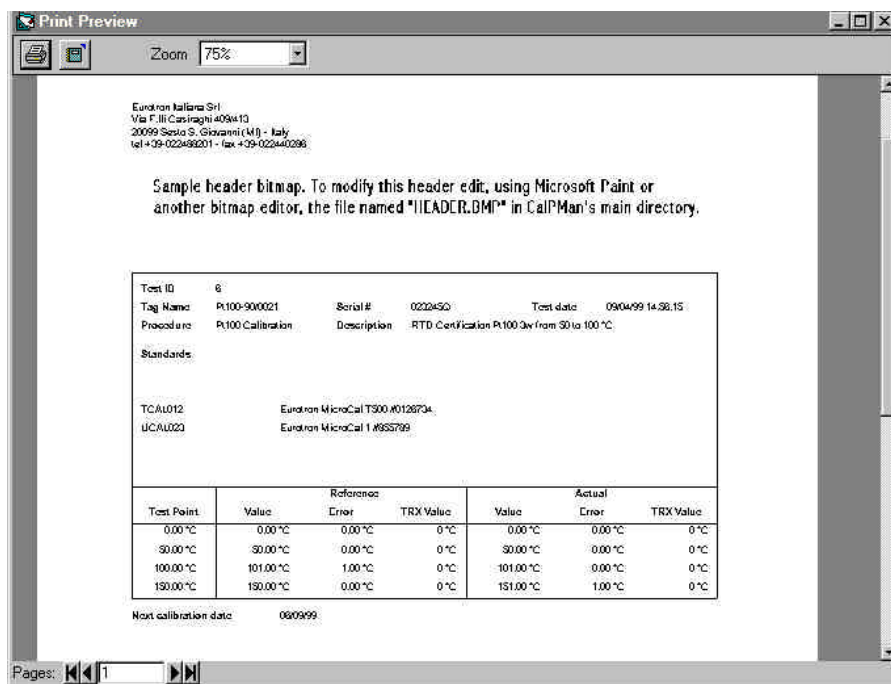


If manual values input is programmed the program will ask for the reference and the actual values.



When all data are entered (or the automatic procedure terminate), the program will show you for the calibration results.  
 A red line will highlight you for procedure error.  
 A Yellow line will inform you for a wrong result.  
 A white line will inform you for a good result.

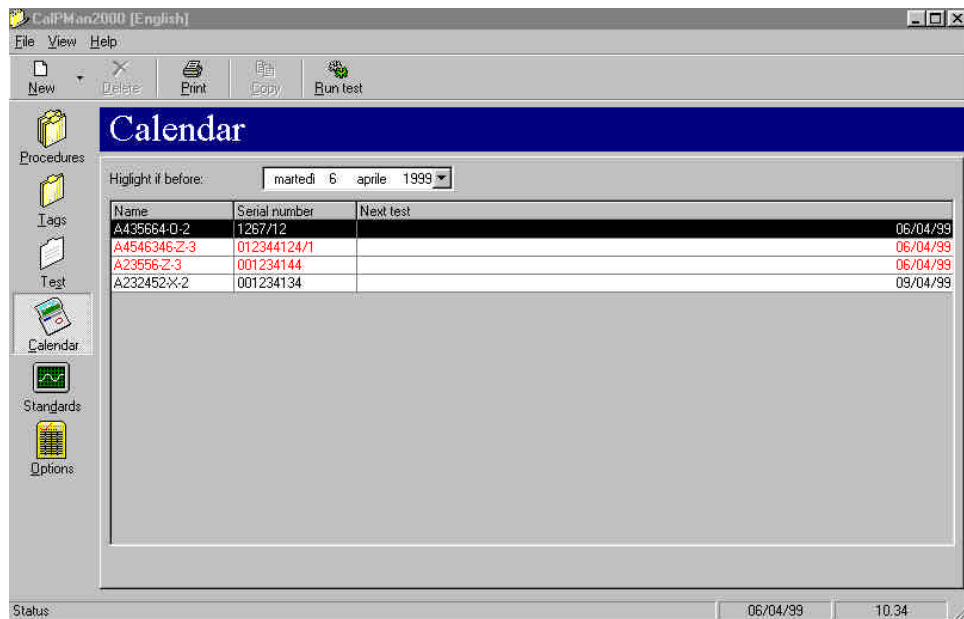
You can preview the testing report by selecting the "File – Print preview" option. And print it by pressing the  button.



Another features is the possibility to insert a bitmap file (e.g. with your logo) on the report. If you save your image file using the name "header.bmp" in **CalpMan 2000** main directory, this image will be printed below the Report Header.

## 2.4 Calendar

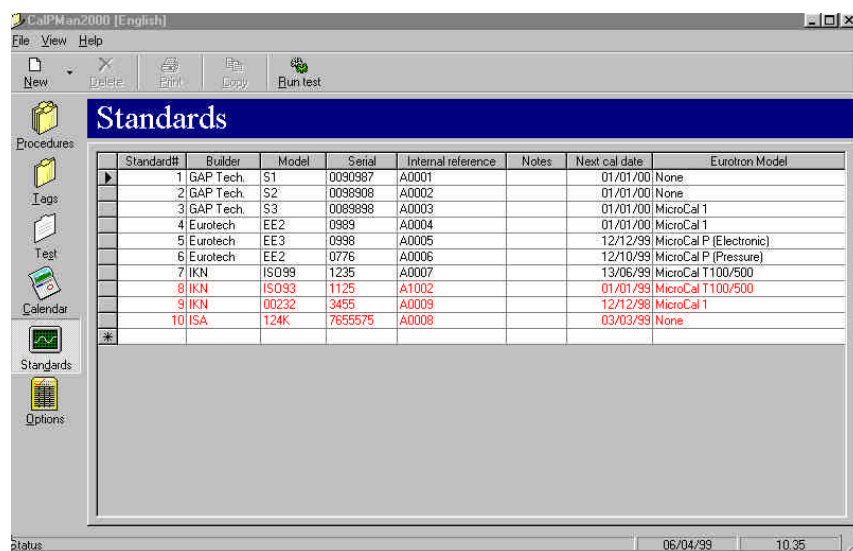
This option views the certification due date for each entered Tag ordered by date. If a Tag certification is expired, its description line is highlighted using red characters.



You can select the desired Tag and run the testing procedure by pressing the  button.

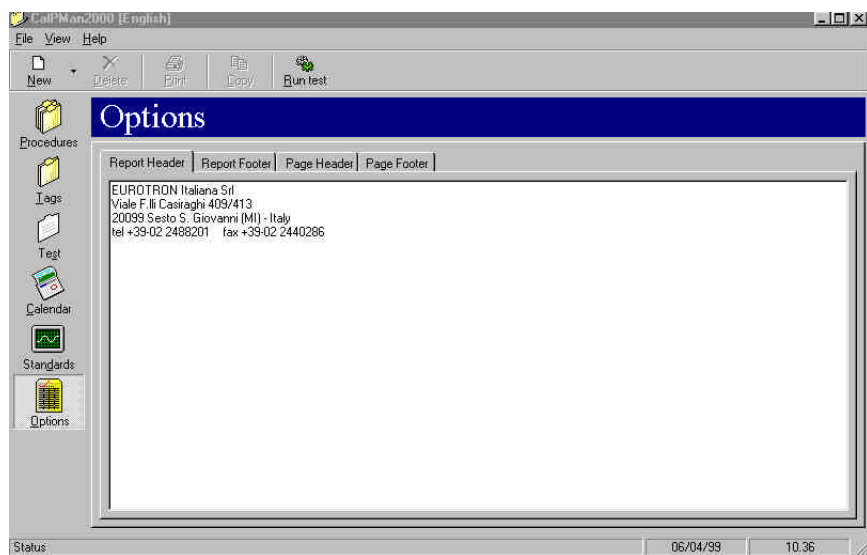
## 2.5 Standards

This option allows you to manage the Standard units database. You can add, delete, or modify the data for the reference instruments used for the procedure. You can enter many important information: Model, S/N, internal reference, notes, OMEGA model, Manufacturer, and next calibration date. Next calibration date field, is very important because allows you to manage the calibration due date for your standards: the red characters will inform you that a new calibration should be performed.



## 2.6 Options

This option allows you to edit Report and Page Headers and Footers for documentation printing. Each certification of calibration can be personalized with your name, address or with a document introduction.



## 2.7 Exit

By selecting this option on the File menu, you can quit **CalPMan 2000** software.

### 3 APPLICATIONS

Typical procedures to check and certificate the most common instruments are shown in the following paragraphs.

**IMPORTANT: THE FOLLOWING PARAGRAPH IS ONLY TO SHOW HOW THE PROGRAM WORKS. THE DATA ARE INDICATIVE FOR THE DESCRIBED EXAMPLE.**

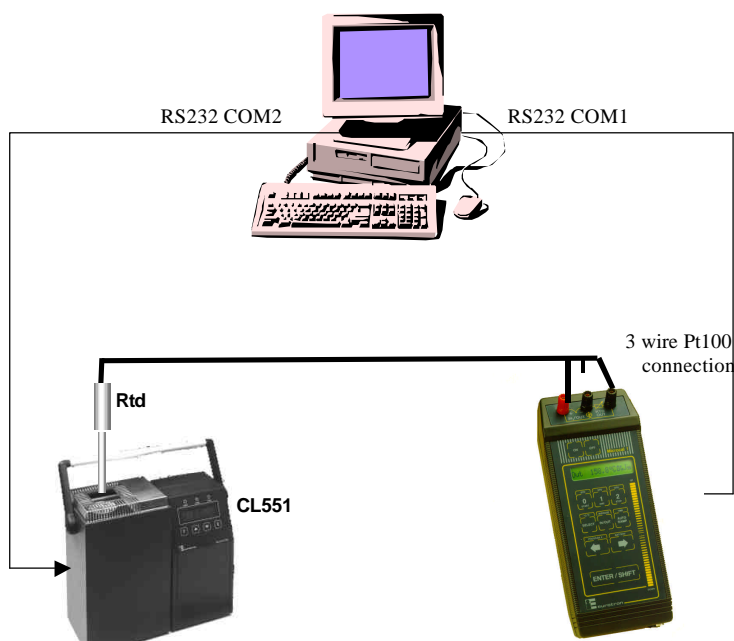
#### 3.1 Rtd certification

The application consists to certificate a resistance thermometer (Pt01) using the system described below. **CalpMan 2000 (CL550-SOFT)** package is designed to work with all **OMEGA** calibration instruments. As example we have choose to use CL526 multifunction calibrator for Rtd temperature reading and CL551 dry block temperature calibrator for temperature generation.

We need the following components:

- A **Personal Computer** with two RS232 board (we recommend a Pentium or equivalent processor)
- **CalpMan 2000 (CL550-SOFT)** software.
- OMEGA **CL551** or other OMEGA temperature calibrator completed of a multiple hole insert block.
- OMEGA **CL526** signal calibrator with RS232 communication cable.
- The Rtd to be certified.

Connect all system components and the Rtd to be certified as follows:



- Connect the RS232 serial communication cables among the PC and the instruments.
- Insert the resistance thermometer in CL551 dry block.
- Connect the Rtd to the CL526.
- Switch the instruments and the Personal Computer on.

Rtd specifications are:

- Model: Pt100 3w produced by UKB S.r.l.
- Tag name: Pt-01-123
- Resistance thermometer type Pt100 3-wires
- Measuring range: 30...120°C
- S/N: 97113/04
- Certification temperature test point:
  - 50°C max error  $\pm 1.0^\circ\text{C}$
  - 100°C max error  $\pm 1.0^\circ\text{C}$

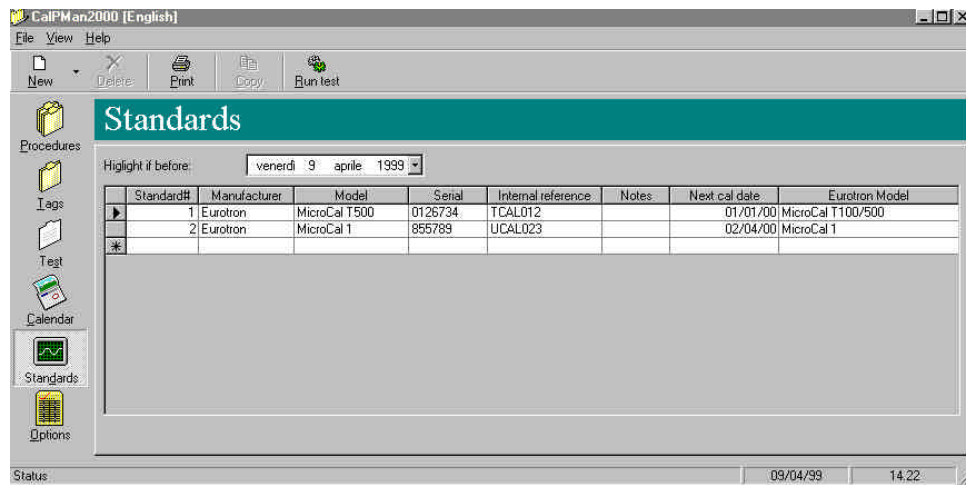
Run the **CalPMan 2000** calibration package.

### 3.1.1 Standards programming

Before starting procedure programming, you have to input the data of the instruments used as Standards in calibration procedure.

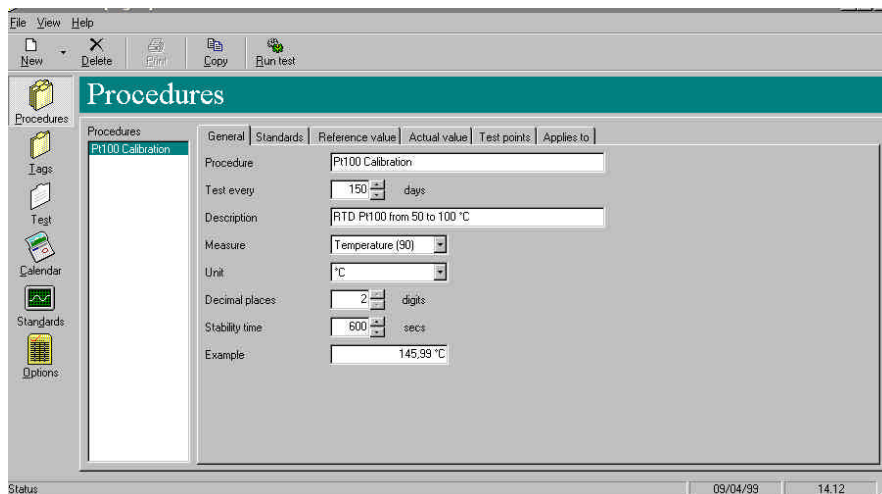
Press "Standards" menu button on the vertical menu bar.


Add the following two records for CL526 and CL551 calibrators in database table.



### 3.1.2 Procedure programming

Press "Procedures" menu button on the vertical menu bar.



Create a new procedure is easy by pressing the  button and selecting the "Procedure" option. The procedure windows will be displayed. All fields assumes the pre-set values. You can modify procedure data for compliance with your testing procedure.

#### GENERAL

The procedure main information should be inserted in this form.

Program the form as following:

Procedure: Pt100 Calibration

Test every: 150 days

Description: RTD certification Pt100 3w from 50 to 100°C

Measure: Temperature (90)

Unit: °C

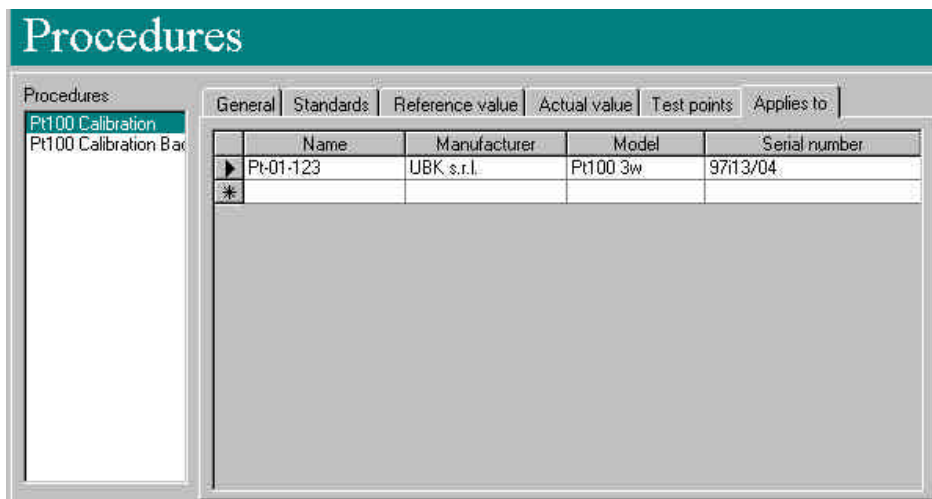
Decimal places: 2 digits

Stability time: 600 secs


#### STANDARDS





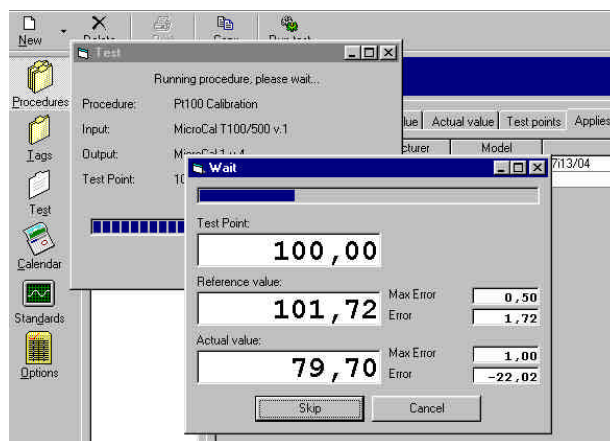


### 3.1.3 Run the procedure

To perform a new test procedure, you have to select the Tag and press the  button. The following window will be displayed:



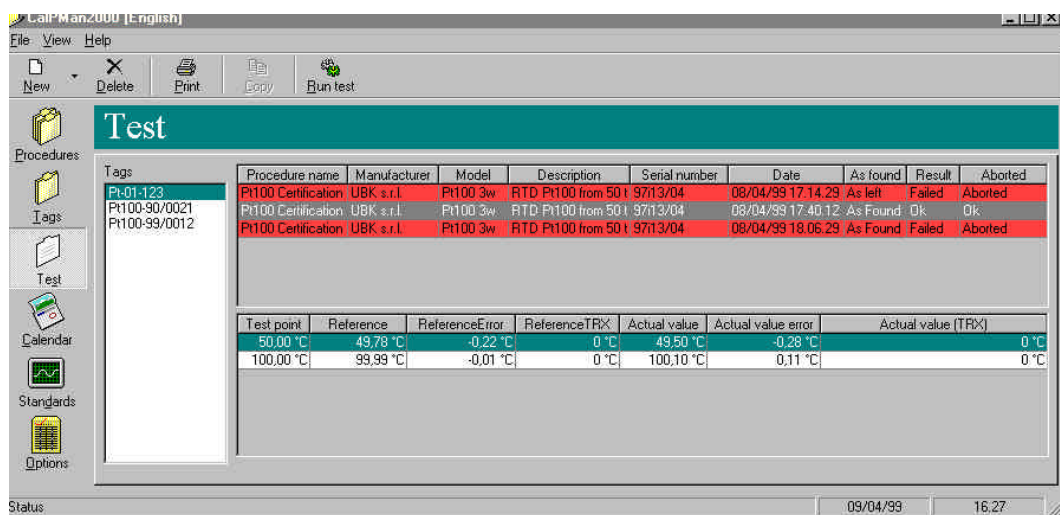
Check all electrical connections. Press the "OK" button to run the procedure. The following window will be displayed:



When all test point will be performed, it will be shown the calibration result.  
 A red line will highlight you for procedure error.  
 A Yellow line will inform you for a wrong result.  
 A white line will inform you for a good result.

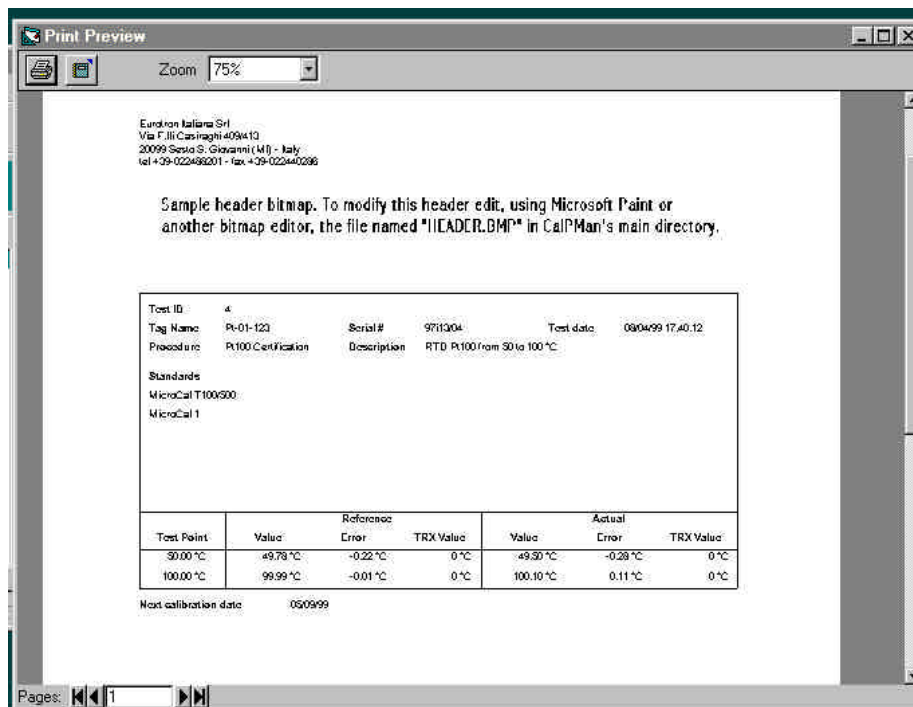
### 3.1.4 Print the test results


Press "Test" menu button on the vertical menu bar.



Select the Tag by the list; select the procedure you have to view and/or print.

You can preview the certificate by selecting the “File – Print preview” option.



You can print the certificate by pressing the  button.

## WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

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# Where Do I Find Everything I Need for Process Measurement and Control? OMEGA...Of Course!

## **TEMPERATURE**

- ☒ Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- ☒ Wire: Thermocouple, RTD & Thermistor
- ☒ Calibrators & Ice Point References
- ☒ Recorders, Controllers & Process Monitors
- ☒ Infrared Pyrometers

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- ☒ Load Cells & Pressure Gauges
- ☒ Displacement Transducers
- ☒ Instrumentation & Accessories

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- ☒ Turbine/Paddlewheel Systems
- ☒ Totalizers & Batch Controllers

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- ☒ Benchtop/Laboratory Meters
- ☒ Controllers, Calibrators, Simulators & Pumps
- ☒ Industrial pH & Conductivity Equipment

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- ☒ Data Acquisition & Engineering Software
- ☒ Communications-Based Acquisition Systems
- ☒ Plug-in Cards for Apple, IBM & Compatibles
- ☒ Datalogging Systems
- ☒ Recorders, Printers & Plotters

## **HEATERS**

- ☒ Heating Cable
- ☒ Cartridge & Strip Heaters
- ☒ Immersion & Band Heaters
- ☒ Flexible Heaters
- ☒ Laboratory Heaters

## **ENVIRONMENTAL MONITORING AND CONTROL**

- ☒ Metering & Control Instrumentation
- ☒ Refractometers
- ☒ Pumps & Tubing
- ☒ Air, Soil & Water Monitors
- ☒ Industrial Water & Wastewater Treatment
- ☒ pH, Conductivity & Dissolved Oxygen Instruments