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I. SAFETY INFORMATION

1. Read the following safety information carefully before attempting to operate or service the meter.
2. Only qualified personnel should perform repairs or servicing not covered in this manual.
3. Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on these instruments.
4. Safety symbols  Dangerous, refer to this manual before using the meter.
 Apply with European CE.

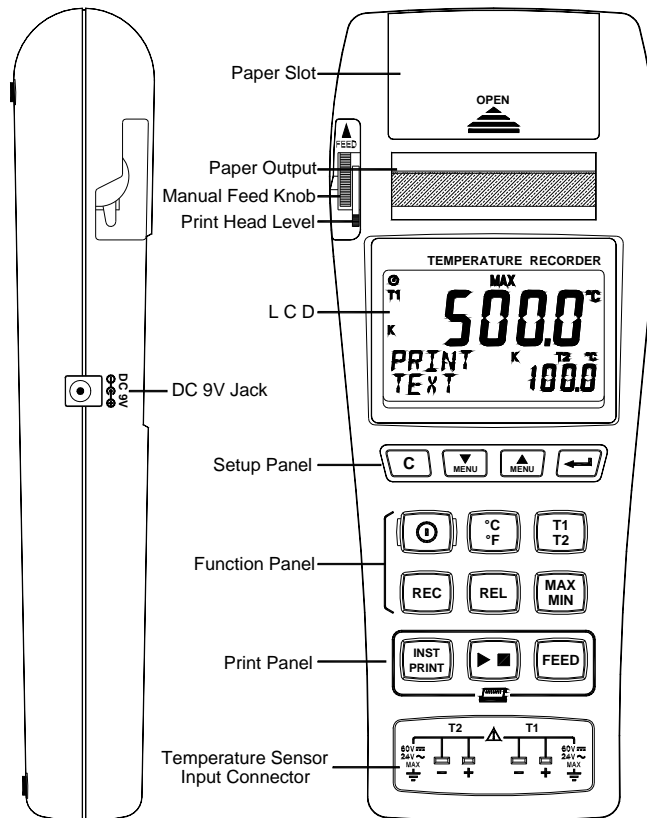
II. FEATURES

1. Graphic Print Out
2. Text Print Out
3. The easy-access menu buttons and text area in the LCD display provide a simple and intuitive hierarchical menu operation for system setup.
4. Built-in real time clock
5. Photo-coupler isolated RS-232 interface
6. Windows data logging software
7. 32,000 Record Data Logger
8. T1 & T2 dual display
9. MAX/MIN function
10. REL function

III. GENERAL SPECIFICATIONS

Measurement Range:	Type-K	-200°C ~ 1370°C -328°F ~ 2498°F
	Type-J	-200°C ~ 760°C -328°F ~ 1400°F
Accuracy:		-200°C ~ 1370°C ±0.1% + 0.8°C -328°F ~ 2498°F ±0.1% + 1.6°F
Resolution:		0.1°C / 0.1°F
Sample Rate:		2 times / second
Input Protection:		60V DC or 24Vrms AC
Data Logger:		32,000 Records
Storage Condition:		-10°C ~ 60°C (14°F ~ 140°F) 0 ~ 80% RH
Operating Condition:		0°C ~ 50°C (32°F ~ 122°F) 0 ~ 80% RH
Battery:		Size AA 1.5V x 6 (alkaline battery)
Battery Life:		Approx. 10days (alkaline battery with 60 second interval under text printerout mode)
Low Battery:		 indicator displayed. Meter will beep and automatically power off.
AC Adapter:		DC 9V ~ 12V, 1A Min (5.5 φ x 2.5mm plug)
Thermal Paper:		58mm width; approx.10 meter length
Dimension (LxWxH):		242 x 98 x 42 mm 9.5 x 3.8 x 1.6 inches
Weight:		580g (20.4 oz.) approx.
Accessories:		Tool box, AA alkaline batteries(1.5V x 6), AC Adapter (DC 9V @1Amp.), instruction manual, K-type sensor x 2 (-50°C ~ 200°C), two rolls Thermal Paper (31 meters x 58mm), RS-232 cable, Windows software,

IV. CONTROLS



Setup Panel:

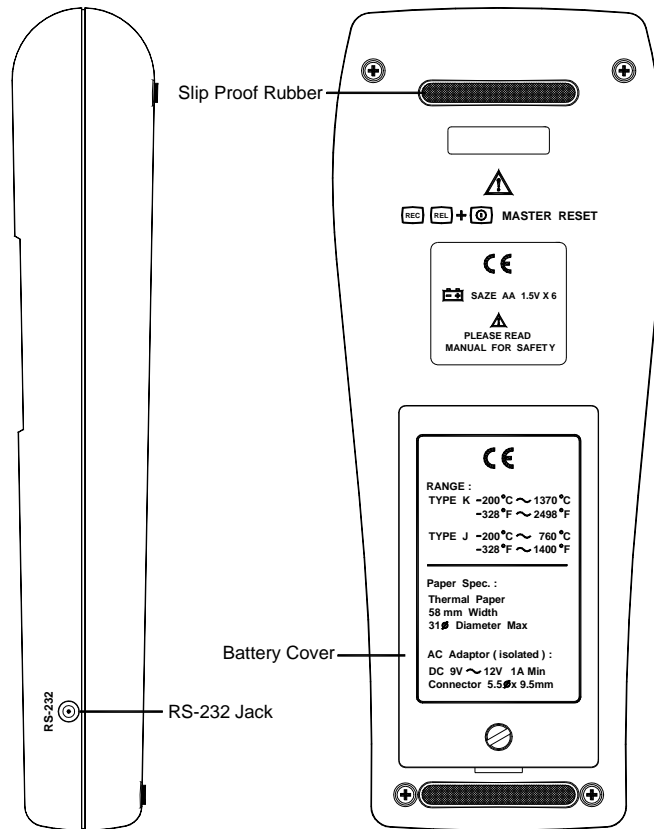
- Exit without saving
- Browse menu or number down
- Browse menu or number up
- Enter

Print Panel:

- Print present data
- Start / Stop printing
- Paper feed 2/3 inch

Function Panel:

- Power button
- °C / °F button
- T1 / T2 button
- Record button
- Relative readout button
- MAX / MIN button



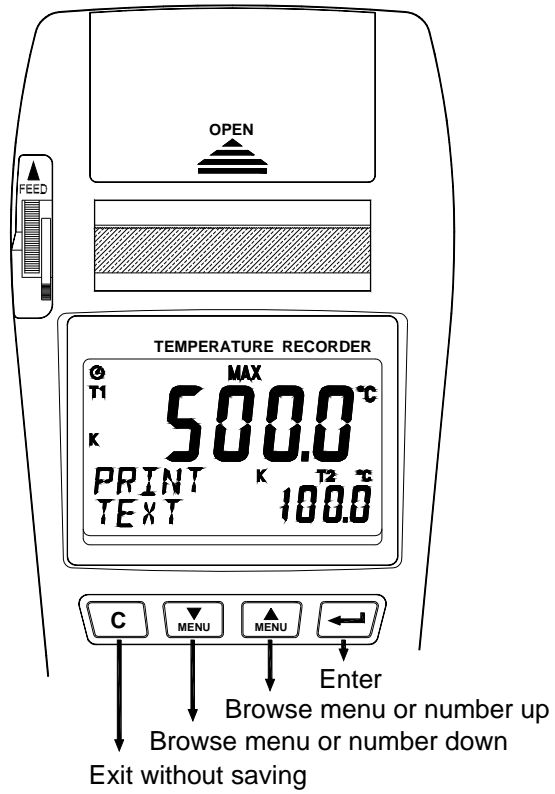
Function Panel:

	Auto power off
	Printing in process
REC	Recording in process
MAX	Maximum display mode
MIN	Minimum display mode
REL	Relative display mode
	Low battery
K J	Thermocouple Type
T1 T2	T1 / T2 Indication
°C °F	Temperature unit

V. OPERATING INSTRUCTIONS

5.1 Setup Menu

Press either of the “Browse menu...” (Menu Select) buttons to select menu to select menu

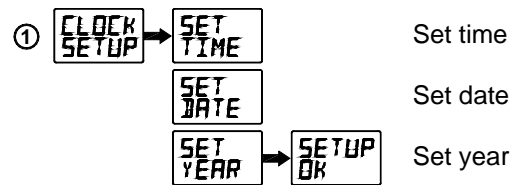


Menu item

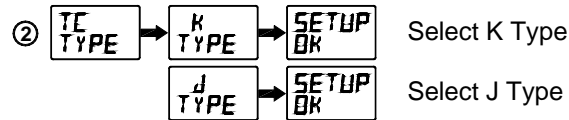
- ① **CLOCK
SETUP** Set system clock
- ② **TC
TYPE** Set Thermocouple Type
- ③ **PRINT
SETUP** Set start/stop printing time and print mode
- ④ **REC
SETUP** Set start/stop recording time and record interval
- ⑤ **MEM
ERASE** Clear Datalogger memory
- ⑥ **POWER
SETUP** Power management setup
- ⑦ **ALARM
SETUP** Alarm limit setup
- ⑧ **PRINT
TEST** Printer test printing
- ⑨ **SYS
INFO** Print out setup information

Menu description

Set system clock

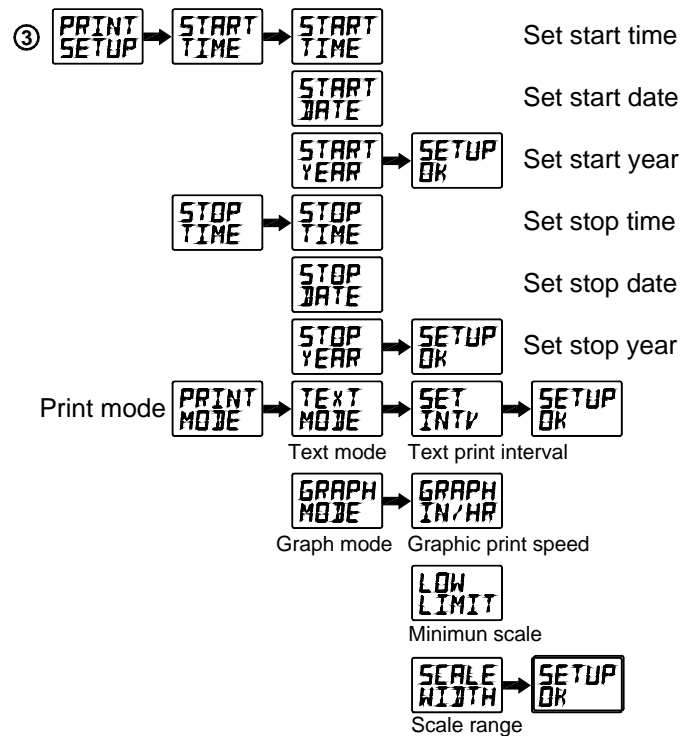


Set thermocouple type

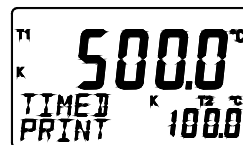


Note: The thermocouple type selected and actual sensor type must match.

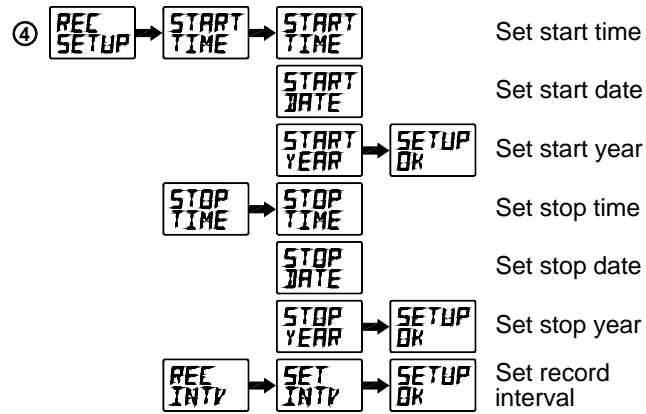
Set print start/stop time and print mode



- Note:**
1. Text print interval options:
2/5/10/15/30 seconds 1/2/5/10/15/30/60 minutes
 2. Graph print speed options:
1/2/3/4/5/6/8/12/24 inch/hour.
 3. Graph print scale width options:
10,20,50,100,200,500,1000,2000
 4. After setup is done, in normal mode the LCD will display "TIMED PRINT" and auto power off will be disabled.



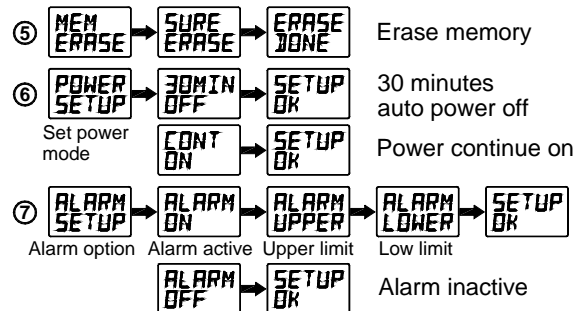
Datalogger start/stop time and Recording Interval Setup



Note: 1. Recording interval options:

1/2/5/10/15/30 second; 1/2/5/10/15/30/60 minute

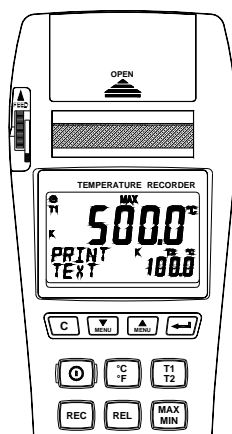
2. When REC setup is done and in normal mode, the LCD will display "TIMED REC" and auto power off will be disabled.




Note: When Alarm is active and the measurement is outside the limit there will be a beeping until the measurement is inside the limit.

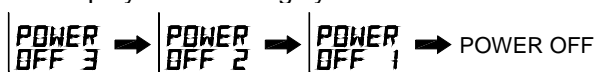
- ⑧ PRINT TEST → Printer diagnostic
- ⑨ SYS INFO → Print all of the setup information


5.2 Temperature Measurements




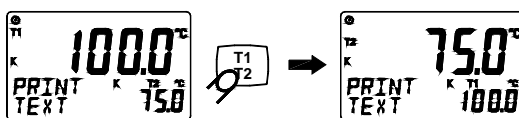
- 1. Power:** Press  to turn the power on.

Press and hold  for three seconds to turn off the power. While powering off, the LCD will display the following symbols:

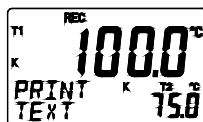


- 2. Select unit:** Press  to select the °C or °F scale. The selection will be kept in the memory after power off.

- 3. T1/T2 switch:** Press  to switch between the T1 and T2 display window.



- 4. Recording data:** Press  to start recording, and the LCD will display the "REC" symbol.



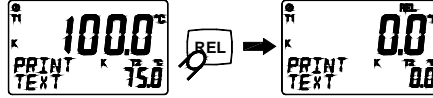
Press it again to stop recording.

If the 'REC' symbol blinks, it indicates the memory is full, and the LCD will display "REC FULL".



To set the recording interval, please refer to Page 9.

5. **Relative mode:** Press **REL**, the meter will memorize the present reading and will then display the difference between the new reading and the memorized value.

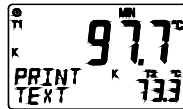


Press it again to exit the relative operation.

6. **MAX/MIN mode:** Press **MAX MIN**, and the LCD will display the "MAX" symbol and maximum reading.



Press **MAX MIN** again, and the LCD will display the "MIN" symbol and minimum reading.



Press **MAX MIN** again, the "MAX" and "MIN" symbols will blink together, and the present temperature will be displayed.

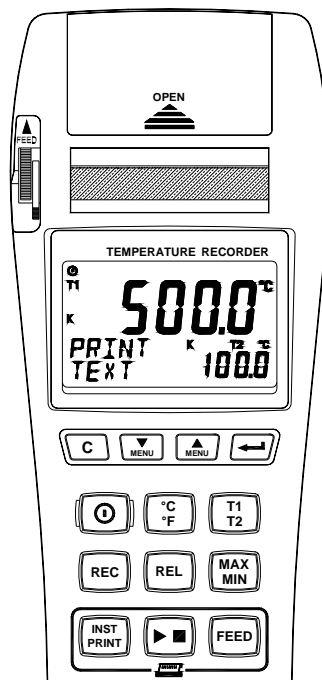


The meter will retain the maximum and minimum values while you repeat these steps.

Press and hold **MAX MIN** for three seconds to exit this mode.

5.3 Printing


Use the printer control buttons to initiate printing.




1. Instant printing:

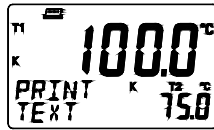
- Press **INST PRINT** once to print out the date, time, and the present temperature
- Instant printing will only print text.
- Pressing **INST PRINT** during the text printing process, will insert one batch of text into the printing sequence which includes the date, time and temperature data.
- Pressing **INST PRINT** during the graphic printing process inserts a cross symbol to indicate the data on the chart, with the related time labeled on the side.

2. Start and stop printing:

Press  to start printing.

Press the button again to stop printing.

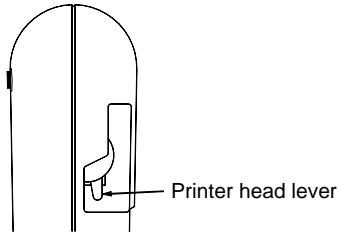
The LCD will display the  symbol while printing.



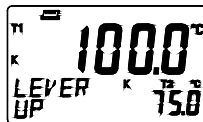
Please refer to Page 8 regarding print setup.

3. Feed: Press once to have the printer feed 2/3 inch of paper out.

- Make sure to lower the printer head level before printing.

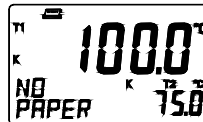


- When the printer head level is in the up position, and printing is started, the LCD will display "LEVER UP".



Push the lever down and print again.

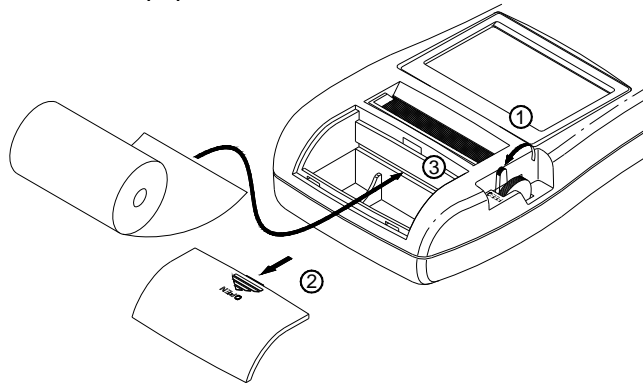
- When the paper is empty and printing is started, the LCD will display "NO PAPER".



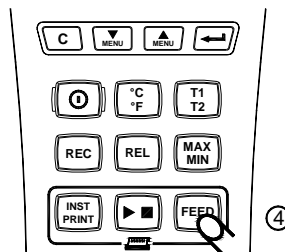
Please refer to the following section regarding loading thermal paper.

5.4 Load Thermal Paper

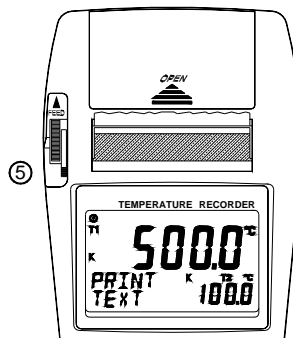
1. Pull up the printer head lever.
2. Remove the paper cabinet cover.
3. Insert the paper into the slot.



4. Press **FEED** a couple of times to load the paper into the printer.



5. When paper comes out of the front slot, push the printer head lever down.

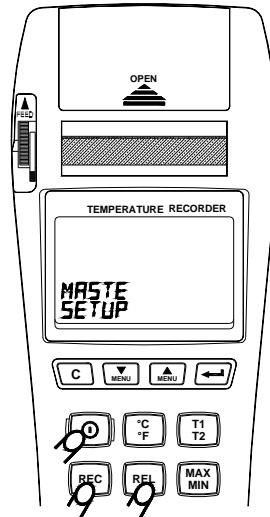


VI. ATTENTION

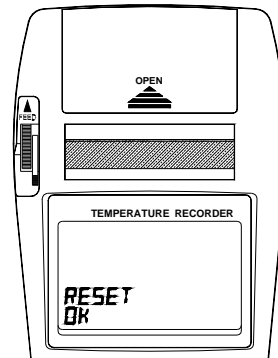
6.1 Master Reset

If the meter appears to be in an unknown condition, it can be reset to its default setup. To reset the meter:

1. Turn off the power.
2. Press and hold **REC** **REL** simultaneously, then press **⏻**, and the LCD will display "MASTER SETUP".



3. Release all buttons; the LCD will display "RESET OK".



VII. Software

7.1 Installation

System Required:

Windows 95 / Windows 98 / Windows ME
Windows NT 4.0.

Minimum Hardware Required:

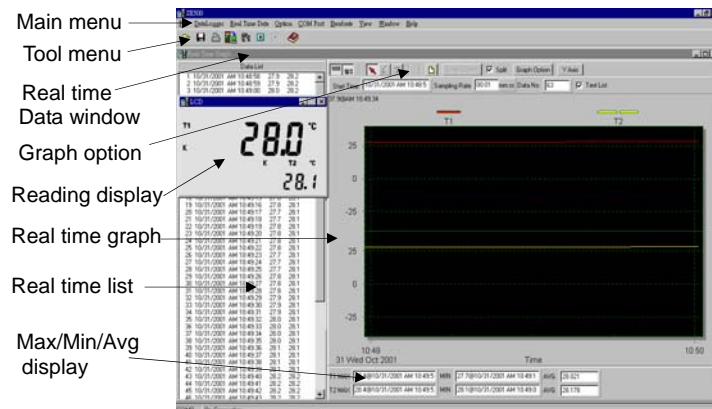
PC with Pentium processor, 90MHz or higher
32 MB RAM
4X CD-ROM Drive or faster
Recommended display resolution 800X600
At least 5 MB hard disk space available to install
TestLink.

Installation:

1. We recommend closing all other applications before installing TestLink.
2. Insert the setup CD into the CD-ROM drive and the installation program should start automatically.
3. If installation does not start automatically, choose the Start button on the Taskbar and select Run.
4. Type E:\SETUP and choose OK. The SE500.exe (executable file) and help files will be copied to your hard disk (default is c:\program files\TestLink\SE500).

7.2 Introduction

Main Screen



Main Screen

File: Open - Opens previously saved files from the hard drive.

Save - Saves data from the the active window (when the Title bar is highlighted) to disk.

Print - Prints the data of the active window (graph or list).

Printer Setup - Select printer.

Exit - Terminates TestLink program.

DataLogger: Opening the DataLogger Window allows loading of recorded data from the meter to the PC.

Real Time Data: Run - Start recording realtime data.

Stop - Stop recording realtime data.

Option: Setup Temperature Recorder from PC.

COM port: Select PC connector port manually.

View: LCD - Open LCD simulation window.


Real Time Graph - Open Real-Time Graph window to graph the loaded data.

Window: Arrange windows

Help: On line help.

DataLogger



When the Temperature Recorder meter is connected to the PC, select "DataLogger" from main menu or click  in the tool bar to load recorded data from the meter. A progress indicator will display loading progress. If an error occurs, click "DataLogger" again. After the data has loaded completely, the loaded data sets will be displayed, with detailed information for each data set (start data, start time, recording rate, and record numbers).

For example, the figure below indicates two data sets were loaded, set 1 recorded 1,325 records, and set 2 recorded 19,349 records.

Data Sets					
Set	DATE	TIME	Rate	Nums	Typ
1	10/02/2001	21:10:25	00:00:02	1325	C
2	10/02/2001	21:56:26	00:00:02	19349	C



The first data set will automatically be transferred to the graphing and list data after loading. Click on other data sets to view the graph and list of the data set you have selected.

Tutorial Quick Start


Recording real time data from PC.

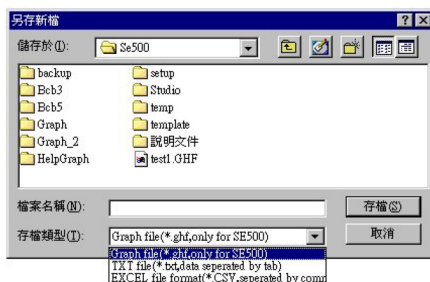
1. Turn on the Temperature Recorder first, then connect it to a PC RS-232 serial port with the supplied cable.
2. Run the TestLink software.
3. If the connection is successful, the LCD simulation will display the same value as the Temperature Recorder. If the connection fails, "No Connection" will be displayed on the LCD simulation window.




4. When the connection is successful, select Real Time Data | Run from the main menu or click  from the tool bar. A dialog box will ask you to select the record interval and how many record numbers to record, and to then click the start button to start recording.
5. When the number of recorded data records reaches the amount you set, recording will stop, or click  to stop recording.

Saving recorded real time data to a file

1. Click the window whose data you want to save make it the active window, then choose File | Save from the main menu or click  from the tool bar.
2. A save dialog box will appear. Choose the file name and file type to save.
3. There are three types of file name you can choose. They are 1) binary file(*.ghf), 2) text file(*.txt) and 3) EXCEL format file(*.csv). The *.ghf file saves a much smaller file than the other two file formats, but can only be used in TestLink SE500. The text file can be opened by TestLink SE500 and any other word processor program such as Word, Notepad etc. The EXCEL format file can be opened by TestLink SE500 and Microsoft EXCEL.



Downloading recorded data from the memory of the Temperature Recorder and saving it to a file

1. Power on the Temperature Recorder.
2. Connect the Temperature Recorder to the PC
3. Start the SE500 program.
4. Choose Data Logger from the main menu or click  from the tool bar.
5. Refer to the section on the DataLogger function.

For additional operating instructions, please refer to the online help within the SE500 application.



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