Oven Loggermaster

BEVS 2301

User Manual

Version

This manual shall be read carefully before starting. Directions included in this operation manual shall be strictly followed

Content

1. Brief Introduction

1.1 Overview

Type K Thermocouple connectors

Monitor, displaying HMI and temperature etc.

Confirm Button, confirm the selected

USB port, for download and charging

Up Button, move up the highlight cursor

Down Button, move down the highlight cursor

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1.2 Exchange Battery

The Oven Data logger is equipped with a rechargeable battery, the same as normal mobile phones. When the monitor displays "Low Battery", please connect the USB line to the charger or PC USB port.

There are 3 3.7V Standard 16349 batteries (Input Voltage Limited: 4.2), please exchange as follow.


Remove the two screws with cross screwdriver

Notice the battery electrode, shunt connection, incorrect installation will damage the battery, even the machine.

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1.3 Connect probe

BEVS Oven Data Logger can be connected with 6 K type Thermocouple connectors1s. The all 6 connectors of the machine numbered from 1 to 6, seen on the back, are accessed with the probe. The machine will detect the connected probe automatically and display the result.

Attention: The pins of the thermocouple plug are of different width and can only be plugged-in one way. Please keep in mind. Wrong direction will damage the connector and lead to the reversed data.
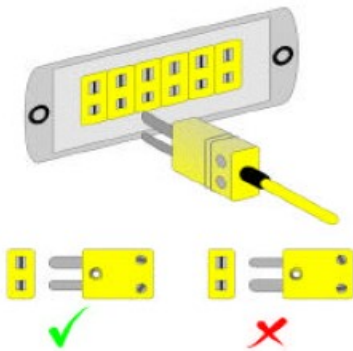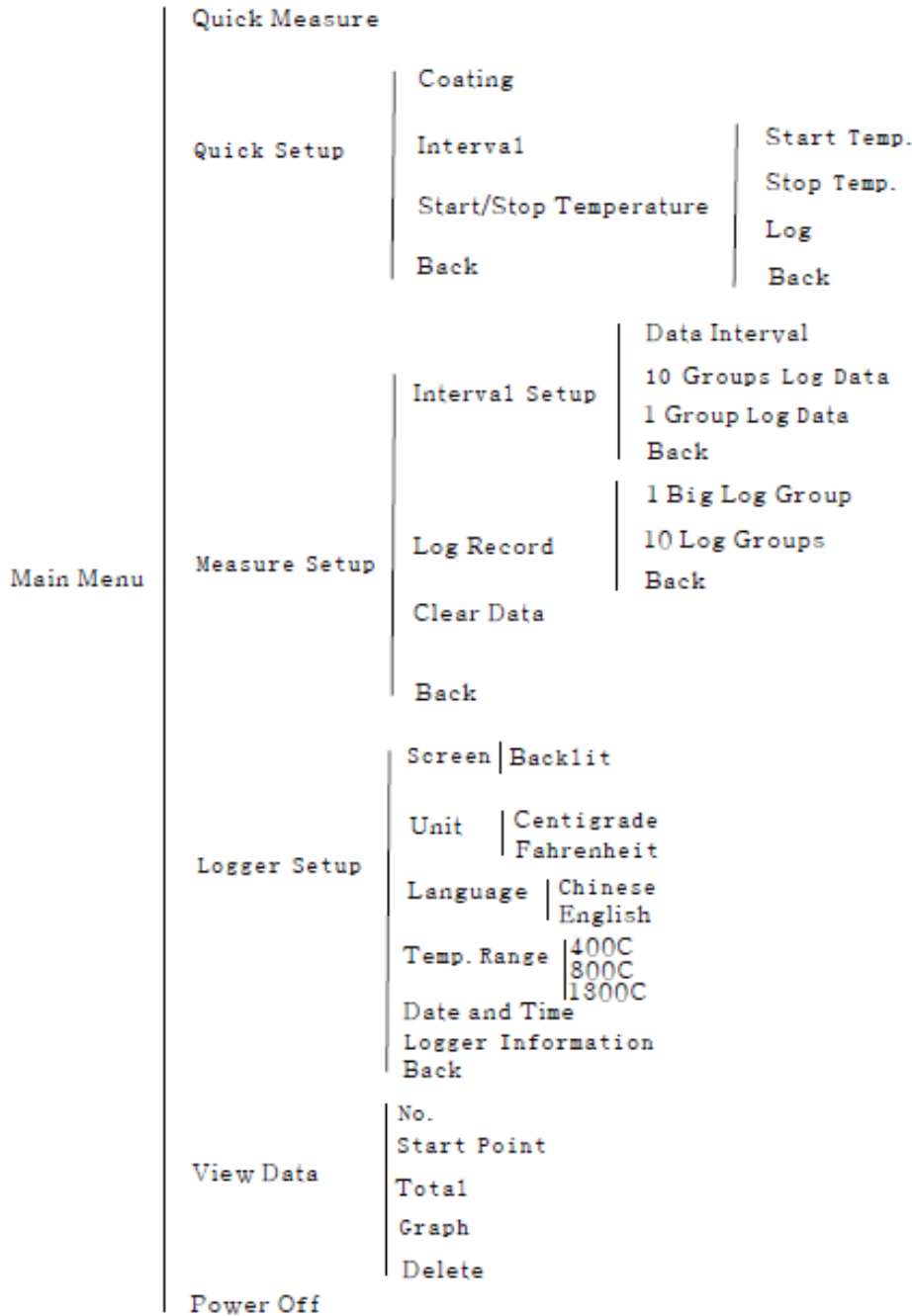

· If no probe is connected, the machine will not start logging. An error message "No probe attached!" will appear on the display.

2. Operating Instruction

2.1 Quick Start

1. Insert the battery(1.2 for reference)
2. Connect the probe(1.3 for reference)
3. Start(Press the confirm button for 5 sec.)）
4. Attach the probe to the work piece to be measured。
5. Select "Quick Measure" and view each probe temperature to confirm working.
6. Put the logger into the heat insulation box, pull out the connecting line and close the lid.
7. Put the box into oven and take out the logger after measurement.
8. View the temperature curve on the logger or upload it into the PC for further analysis.

2.2 Block Diagram of the Function Menu

```
Main Menu
 ├─ Quick Measure
 ├─ Quick Setup
 │    ├─ Coating
 │    ├─ Interval
 │    ├─ Start/Stop Temperature ─┬─ Start Temp.
 │    │                          ├─ Stop Temp.
 │    │                          ├─ Log
 │    │                          └─ Back
 │    └─ Back
 ├─ Measure Setup
 │    ├─ Interval Setup ─┬─ Data Interval
 │    │                  ├─ 10 Groups Log Data
 │    │                  ├─ 1 Group Log Data
 │    │                  └─ Back
 │    ├─ Log Record ─┬─ 1 Big Log Group
 │    │              ├─ 10 Log Groups
 │    │              └─ Back
 │    ├─ Clear Data
 │    └─ Back
 ├─ Logger Setup
 │    ├─ Screen | Backlit
 │    ├─ Unit ─┬─ Centigrade
 │    │        └─ Fahrenheit
 │    ├─ Language ─┬─ Chinese
 │    │            └─ English
 │    ├─ Temp. Range ─┬─ 400C
 │    │               ├─ 800C
 │    │               └─ 1300C
 │    ├─ Date and Time
 │    ├─ Logger Information
 │    └─ Back
 ├─ View Data
 │    ├─ No.
 │    ├─ Start Point
 │    ├─ Total
 │    ├─ Graph
 │    └─ Delete
 └─ Power Off
```

2.2.2 Function Instruction

Quick Measure: Start with the original setup unless "Cover it" or "No Probe Detected" displayed.

Paint: Set paint type

Interval: Set the logging frequency from 1-3000 second.

Start/Stop Temperature: Set start or stop point to log in the sub-menu. The logging will start when a rising temperature passes the start point and will stop when a falling temperature passes the stop point.

Data Interval: Set the logging frequency from 1-3000 second. The "Records of Ten Groups" and "Records of One Group" mean that the time needed to use out the memory.

Testing record: the capacity of the data logger is 500000 readings, separated into 10 memory zones, 50000 readings each zone. Each data contains 6 probes, which means that each tiny memory zone can save 83333 pieces of data, 10 zones most. Or used as a whole zone of the ability recording 500000 pieces of data. Every new data will be recorded in the next zone no matter where the fore zone status is and it will stop beyond 50000.

Clear data: Clear out all the data, please be cautions.

Backlight: Adjust the backlight from off to highlight or stay the original setup screen off in 10 seconds without any operating.

Set Unit: SELECT this option to set the instrument in either Celsius or Fahrenheit.

Set Language: choose your favored language

Temperature Range: set the max temperature, but the lower, the more accurate. Please be cautious that the actual temp beyond the setting will lead an error.

Date and Time: Set the date and time as the logging date and time.

Review Stored Data: Checkup the stored data and curve, which named after the testing date and

number of testing times.

No.: Working times

Start Timing: the local time of starting a test.

Total: numbers of logged data. (Each data contains six records of the six probes)

Diagram: curve based on the current data.

Delete: delete the selected data

2.3 Prepare to test

Step1: Make sure the box at room temperature.
Step 2: Open the box and place the blue heat absorber with the aperture for the instrument facing upwards.
Step 3: Place the data-logger with the probes already connected inside the blue absorber.
Step 4: Lead the probe cables over the gasket and edge of the box at the cable outlet point.
Step 5: start logging
Step 6: Mount the cover on box and make sure the stainless steel edge slides a few millimeters over the box at all sides. Also check if the cutout of the cable outlet of the cover is facing the same cutout in the box and the probe cables are placed properly.
Step 7: Tighten the cover with the four latches and check again if the box is properly closed at all sides.

2.4 Handling Precaution

*Always wear heat protective gloves when taking out the box out of the oven.
*Open the box as soon as possible after the test
*Take logger and heat collector out of the box in order to cool down. Note that the heat collector needs quite a long time to cool down once heated up.
*When stored do not lock the cover with the latches in order to increase the lifetime and elasticity of the rubber gasket!

2.5 Mounting Probes

Please make sure that the probe cables are free from objects and the oven walls, floor, sealing and burners etc. to prevent them from hooking which may cause severe damage to probe and instrument. Also check if the probes are placed securely so they will not come off during the process.

1. The magnet surface probe

This probe can be placed on any ferrous steel object. The sensing part is located exactly in the middle of the probe.

2. The clamp surface probe

This probe can be placed on any object by using the clamp. The sensing part is located inside the jaw of the clamp, insulated by a small piece of ceramic. There is some friction on this part in order to let the sensing part align itself to the surface to make good contact.

Take the clamp between thumb and forefinger, check, which jaw has the sensing part and place the probe at the preferred location on the object. Maximum reach of the clamp is 20mm.

3. The clamp air probe

This fast responding probe has its sensing part inside the little steel protective tube.

Connect the probe to the object or conveyor belt in the same way as the clamp surface probe. Wear the protective gloves to remove the probe by grabbing the probe head not the cable.

3. Software Installation Windows

3.1 Upload data into the computer

1. Install the analysis software and driver.

2. Connect the logger and PC with the USB cable and make sure the logger on.

3. Click the icon to open the software

4. Click data-port test
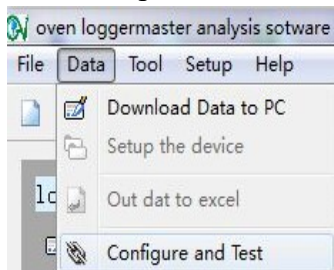
5. Click Test button after set the COM port
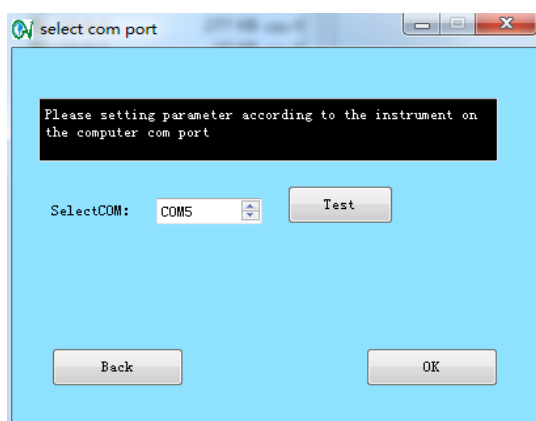
6. Click to upload the data when connected successfully

7. Tick the wanted data and click download

8. Choose to save the profiles and confirm.
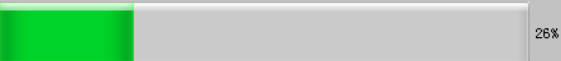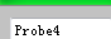
9. Make sure the download progress done

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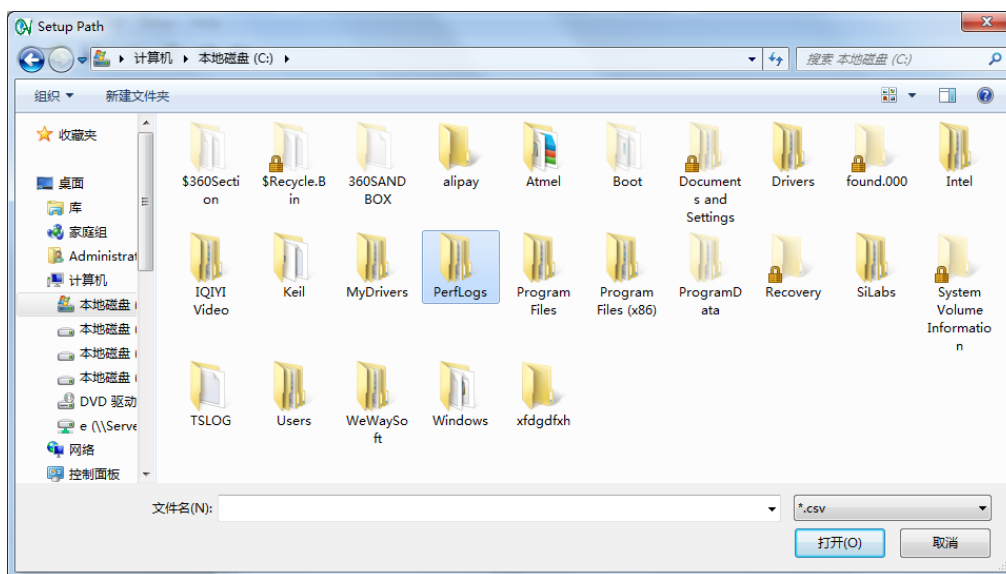
3.2 Open the Data

After downloading, follow the next to get the curve.

1. Click Open
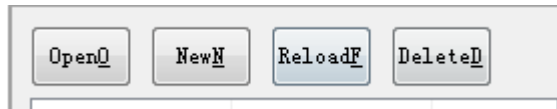
2. Select the file and click to open

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3.3 Analyze Data

Upload the new data to current catalogue

Refresh and you will find the file

The set temperature point

Logging time of the current mouse

Logging temperature of the current mouse

3.3.1 Zoom in and out the curve

Click and hold down the left mouse button. Drag the mouse pointer to the opposite corner where the button is released. Magnification depends on the ratio of wanted point and whole quadrant.

3.3.2 Set temperature point

Remark the point with red by clicking the left mouse button, click right mouse button to delete the remark, and click Save to save the setting.

3.3.3 Set temperature curve

Set the color and size of the curve in "Probe Info."

6 Probes No.1-6

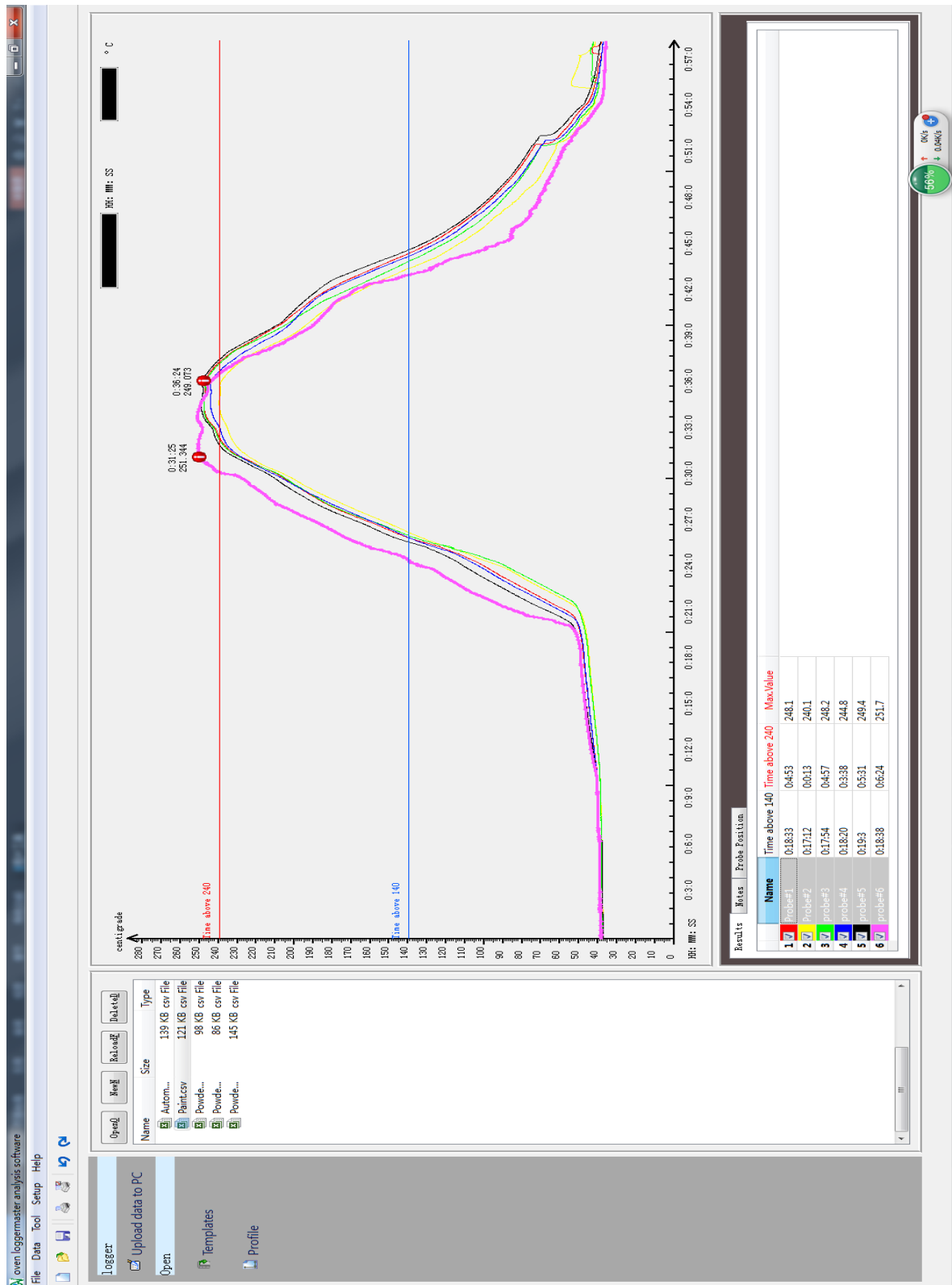Name the probe

Set the curve size

Set the curve color

3.3.4 Set Analysis Item (maximum temperature, time above temperature etc.)

Select the item and click right mouse button, the choose Build a new item.

Select the whole line

Build a new analysis item

Delete the selected item

Modify the selected item

Cancel select to hide the probe

Double click to change the curve color

	Name	Time above 140	Time above 240	
1 ☑	Probe#	New column	0:4:53	24
2 ☑	Probe#	Delete column	0:0:13	240.1
3 ☑	probe#	Edit column	0:4:57	248.2
4 ☑	probe#4	0:18:20	0:3:38	2
5 ☑	probe#5	0:19:3	0:5:31	24
6 ☑	probe#6	0:18:38	0:6:24	251.7

Results   Notes   Probe Position

Modify the item

Display the item title

Set temperature

Select curve display on or off

Change the curve title and color

New column

Calculation: Time above

Title: Time above   Color

Temp: 251.7

☑ Enable auto graph markup

☑ Label "markups"

Style: ―――――   Color

Cancel   OK

3.4 Remark the curve

Remark the extra information in the note and it can be printed out.
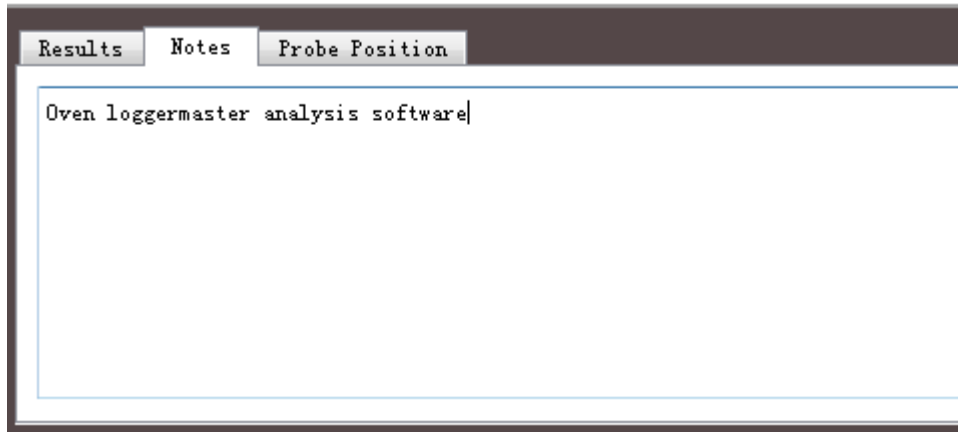
3.5 Print the Curve

Save all after finish all the tasks. Click File-Preview-Print, report printed.

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