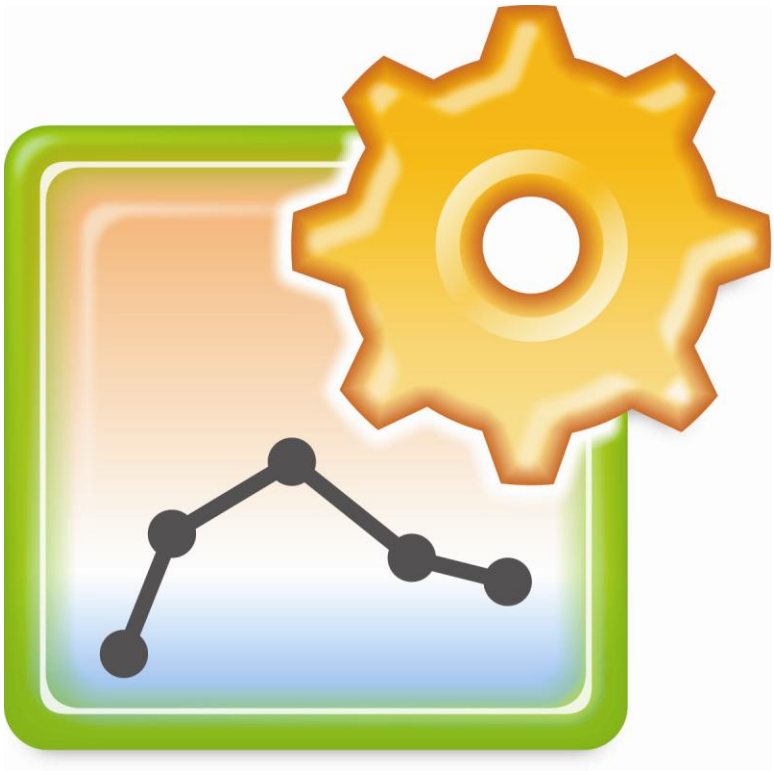
Profile Generator



User Manual

Akrometrix Proprietary Information

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Contents

1 Introduction

1.1 Overview

As part of the Akrometrix Studio software platform, **Profile Generator** is a graphical layout tool designed to assist in the creation of temperature profiles for use with the Akrometrix **Thermal Profiler** application. It creates files with the extension *.akx_profile, which can be easily modified using a simple text editor as they are standard XML files.

This manual describes the interface and functions of the Profile Generator software. Profile Generator may reside on the measurement equipment computer and/or on a remote computer, provided the user has the requisite USB software key.

Section 2 describes the Profile Generator application and its operation. **Appendix A** describes software file formats and keyboard shortcuts.

1.1 Warnings and Precautions

1.1.1 Warnings and Notes in this Manual

Warnings and Notes are marked throughout the manual with these icons:

Figure 1.1 Warning Icon

Figure 1.2 Note Icon

Warnings are specific health hazards for the operator or potential sources of system damage. Notes highlight system limitations or automatic responses that may require corrective action by the operator for successful operation.

1.2 Technical Support

For technical support, contact Akrometrix:

Akrometrix	404-486-0880	support@akrometrix.com
2700 NE Expressway	404-486-0890 (fax)	http://www.akrometrix.com
Building B, Suite 500		
Atlanta, GA 30345		

When contacting Akrometrix, please provide the system serial number, the version numbers of the Akrometrix software being used, a description of the problem or question, and contact information for reply. If the question concerns a particular measurement or analysis, please provide electronic copies of the phase images, reference images, and final results and a description of data acquisition and/or analysis conditions. If the problem concerns changes or failure in general system operation, please describe any events or system modifications that occurred immediately before the problem arose.

2 Overview

Profile Generator is an application designed to easily and rapidly create input temperature profiles compatible with the **Thermal Profiler** data acquisition software.

The profile space is defined as Temperature (°C) vs. Step.

Recall that the Time per Step relationship is defined when the profile is executed by the **Thermal Profiler** software.

2.1 Creating Profiles

Profiles are created from a series of connecting line segments. Segments may be added logically, where the user specifies a criterion which best describes the segment endpoints, or by hand, where the user simply clicks to extend a segment to its desired end point.

2.1.1 Adding Segments Descriptively

1. If the default value of 25°C is not desirable, set the Initial Temperature.
2. Choose the appropriate criteria (Ramp, Soak, or End-At) and fill in the corresponding values.
3. Press **Add Segment**.
4. Repeat steps 2 and 3 to keep adding segments.

2.1.2 Adding Segments with the Mouse

1. If the default value of 25°C is not desirable, set the Initial Temperature.
2. Click anywhere on the profile space to draw the first segment.
3. Move the mouse cursor to the next desired segment endpoint and click.
4. Repeat step 3 to keep adding segments.

2.1.3 Adding Actions Descriptively

1. Select the action type from the Actions box located below the design space.
2. Specify the criteria at which to add the instruction (At-Step or At-Temperature).
3. Press **Add Action**

Note: Whenever the ‘at Step’ value is changed, the corresponding profile temperature is supplied below.

Note: If a soak occurs at the selected temperature, an instruction is added to only the segment starting and ending points.

2.1.4 Adding Actions with the Mouse

1. Select the appropriate action tool from the Actions box.
2. Position the mouse pointer along the desired profile position.
3. Primary-mouse click to add the action.

Note: The action position is dictated by the mouse pointer step (x) coordinate. Regardless of the y-mouse location, the instruction is always set at the corresponding profile temperature coordinate.

2.2 Menu Options

2.2.1 File Menu

New **Ctrl+N:** Clears any profile information in memory.

Open **Ctrl+O:** Opens previously saved XML profile templates.

Save… **Ctrl+S:** Saves segment-based profiles in an application-specific XML file format.

Import…: Imports profiles based on the legacy *_in.txt format. Resulting profiles will have every row from the *_in.txt profile as steps in the **Profile Generator** application. Measurement and blower/exhaust instructions will also be imported and placed in their appropriate locations on the profile.

2.2.2 Edit Menu

Undo: A queue of the last 8 actions performed.

Hot Tracking: Toggles whether or not the design space coordinates are displayed alongside the mouse cursor.

2.2.3 View Menu

Table **Ctrl+T:** Clicking on the Table view will open a separate window showing the current profile in a table view. If the profile was created using ramps and soaks, viewing it in this manner will convert the file into discretized Temperature-Action pairs. Once this window is closed, the Segment Endpoints will be turned off since the profile will now consist of many more endpoints than before.

Segment Endpoints **F3:** Toggles the display of segment endpoints on the graph. This is useful for when endpoints are tightly spaced, such as after importing a legacy *_in.txt profile.

2.2.4 Help Menu

In the help menu the user can access both a .pdf of the User Manual as well as find version information for the current software.

Appendix A- Miscellaneous Information

A.1 File Formats

Akrometrix **Profile Generator** imports legacy *_in.txt profiles and saves profiles as *.akx_profile documents. These documents are standard XML documents which can still be read and edited manually should the need arise. A description of the file format and its construction follows.

Concepts

The *.akx_profile format is an XML document containing the following concepts:

Step	A non-negative integer
Temperature	A thermal condition described in °C
Point	A Step-Temperature pair
Type (i.e. Supported Action)	• Acqusition • BlowerOn • BlowerOff • ExhaustOn • ExhaustOff
Action	A Step-Action Type pair
Zone	A collection of Points and Actions
Profile	A collection of Zones

Construction

The XML content is constructed as follows:

1. The first line must read:

```
<?xml version="1.0"?>
```

2. The second line must read:

```
<AkrometrixProfile Version="4">
```

3. The third line must start with a description of a Zone:

```
<Zone>
```

Zone Content

```
</Zone>
```

4. Zone Content

Inside the `<Zone>` node, a collection of Point and Action nodes exist:

A point node describes its Step and Temperature as XML attributes:

```
<Point Step="100" Temperature="125" />
```

An action node describes its Step and Type as XML attributes:

```
<Action Step="12" Type="Measurement" />
```

Rules

- Neither Point nor Action nodes need to be listed in numeric step order.
- At minimum two valid Points must be defined.
- One Point must be defined with Step=0.
- Each Point must have a unique Step value.
- Action nodes are optional.
- Multiple Actions can be assigned with the same Step value provided the Actions are not conflicting (i.e. BlowerOn / BlowerOff)
- Points or Actions with negative or fractional Step values are ignored.
- Duplicate Actions are ignored.
- Actions described outside the overall range of valid Point Step values are ignored.

Good Examples

Example 1

```
<?xml version="1.0"?>
<AkrometrixProfile Version="4">
<Zone>
  <Point Step="0" Temperature="25" />
  <Point Step="50" Temperature="50" />
</Zone>
</AkrometrixProfile>
```

Example 2

```
<?xml version="1.0"?>
<AkrometrixProfile Version="4">
<Zone>
  <Point Step="0" Temperature="25" />
  <Point Step="100" Temperature="125" />
  <Point Step="200" Temperature="225" />
  <Action Step="12" Type="Acquisition" />
  <Action Step="90" Type=" Acquisition" />
</Zone>
</AkrometrixProfile>
```

Bad Examples

Example 1 (missing XML declaration)

```
<AkrometrixProfile Version="4">
<Zone>
  <Point Step="0" Temperature="25" />
  <Point Step="100" Temperature="125" />
</Zone>
</AkrometrixProfile>
```

Example 2 (no zero Step Point defined)

```
<?xml version="1.0"?>
<AkrometrixProfile Version="4">
<Zone>
  <Point Step="100" Temperature="125" />
  <Point Step="200" Temperature="225" />
</Zone>
</AkrometrixProfile>
```

Example 3 (only one point defined)

```
<?xml version="1.0"?>
<AkrometrixProfile Version="4">
<Zone>
  <Point Step="0" Temperature="25" />
  <Action Step="12" Type="Acquisition" />
  <Action Step="90" Type="Acquisition" />
</Zone>
</AkrometrixProfile>
```

A.1 Keyboard Shortcuts

Ctrl+N	Begin a new profile
Ctrl+O	Open an existing profile
Ctrl+S	Save the current profile
Ctrl+T	View profile in a table format
F3	Show/Hide Segment Endpoints