

# ***AMPLITREX***

## **Tubedata Editor**

### **User's Guide**

Software Version 1.00

#### **Introduction**

The Tubedata Editor software is a Windows application (also called a program) which provides easy Tube Data File editing and data upload for the AT1000.

A simple point and click menu system allows easy changes, additions and deletions to the tube data file. With an RS232 Serial Port, the same program can upload the data to the AT1000 for stand-alone (no computer connected) operation. Modified files are also fully compatible with the TubeTest© software, for computer-controlled tube testing and curve plotting.

Full control of all voltage and current settings is provided, as well as expected emission and transconductance (GM) values. All tube types that can be tested with the AT1000 are supported, including those requiring a socket adapter.

#### **Installation**

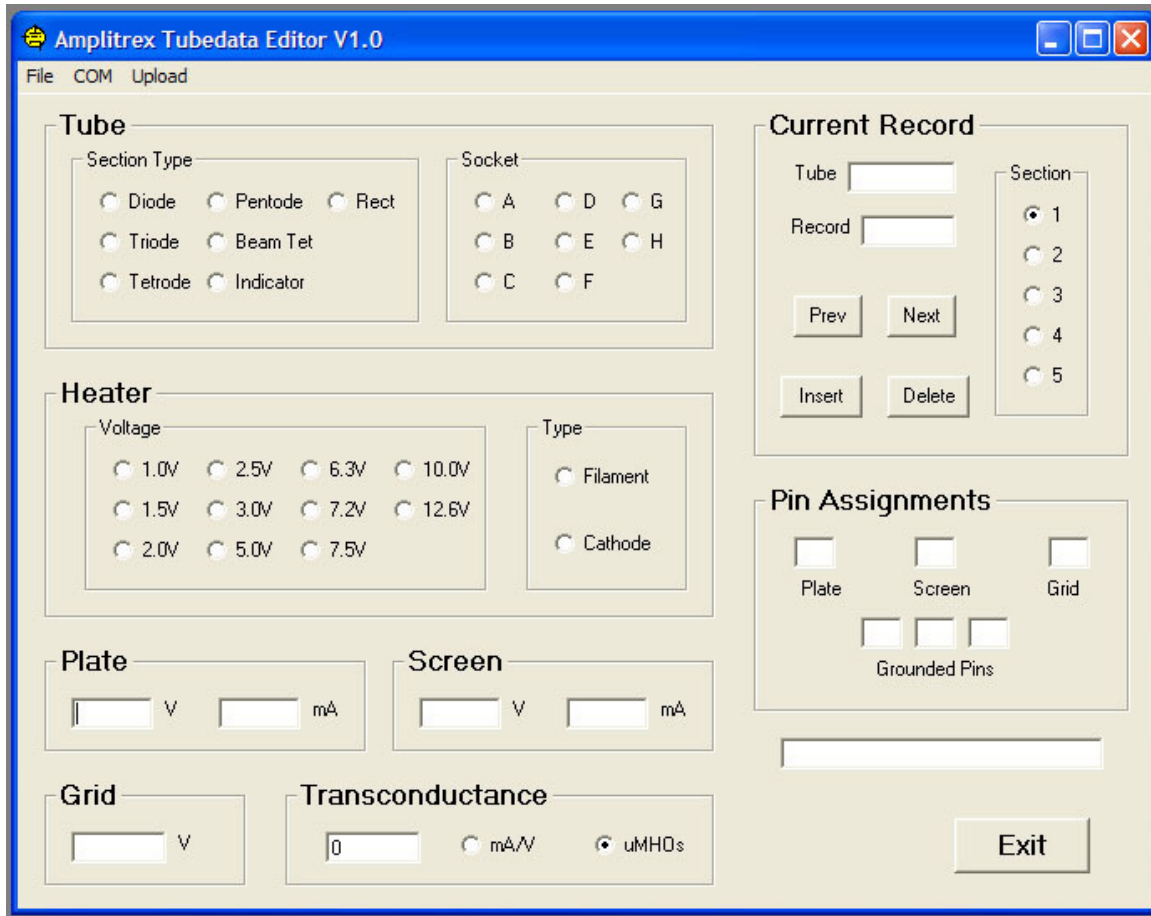
Make a new directory on you computer, and copy the contents of the Tubedata Editor directory into it. Also copy any tube data files (.csv) you would like to edit or upload, into this directory.

Determine which COM port your computer will use to upload data to the AT1000. You will need the COM port number later. The application will work with USB-Serial adapters, as well as native COM ports.

#### **Starting the program**

Double-click the .exe file to start it. You may also want to create a shortcut on the desktop for quick access. When the application runs for the first time, it will create a companion file, with the .uzy filename extension.

When the program starts, the main window appears:



Moving the cursor above most program window items shows a “tool tip”, which is a short description of the item’s function.

### Opening a file

Before you can do any editing, you must open a tube data file. Tube data files have the filename extension **.csv**, and are standard Microsoft Comma Delimited files.

The CD-ROM provided with the AT1000 contains the default tube data file, *tubedata.csv*.

To open a file, click the menu item **File**, and select **Open**. Choose the file to open, and click the **Open** button. The file is loaded into the computer’s memory, for editing or uploading. A file can also be uploaded to the AT1000 without loading it into memory first. See *Uploading*.

### Saving a file

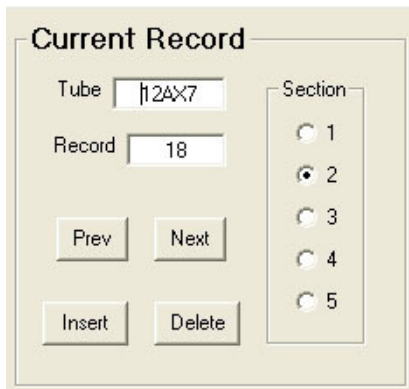
After you have modified a file, you should save it. To save the memory to disk, click the menu item **File**, and select **Save**. Select a file from the list (it will be overwritten), or type in a new filename. Use the **.csv** filename extension. Then click **Save**.

## Data Records

Tube test setup data is comprised of data Records, each containing 15, comma-delimited fields. Each field controls a function or specifies a parameter during a tube test.

A single-section tube such as the 6L6 contains one section. A tube with only one section needs just one Record to hold its test setup.

A dual-section tube such as a 12AX7 contains two triode sections. It requires two Records to hold its test setup, one for each of the sections.



**Current Record**

Tube

Record

Section

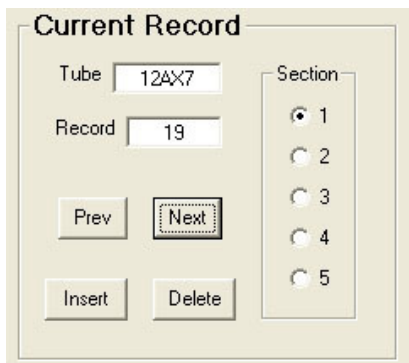
1

2

3

4

5



**Current Record**

Tube

Record

Section

1

2

3

4

5

Note in the example above, the **FIRST** section that will be tested has the **Section** radio button set to 2, and the second (and last) section has the Section radio button set to 1.

The first section tested always occurs at the **LOWEST** Record number for that tube. The last section tested, with the Section radio button always set to 1, always occurs at the **HIGHEST** Record number for that tube.

Tubes with up to 5 sections can be tested with the AT1000, and such a tube would need 5 data Records.

In the **Current Record** section of the program window, a text window shows the data record that is displayed, after a file has been opened. Right after loading, the first data

Record is displayed. It is numbered zero (0), and contains data for the FIRST (or only) section of the first tube that appears when the AT1000 is switched on.

Also in the **Current Record** section, there is a text window that shows the **Tube Number**. A radio button array shows the **Section** number, 1 through 5.

The **Next** and **Prev** buttons operate to move forward and backwards through all the Records in memory. You can also directly type a Record number into the **Record** text box. Press ENTER, and it will go immediately to that Record. Alternately, you can type a tube type number (e.g., 12AX7) into the **Tube No.** text box. Press ENTER and the program will look up your tube. When it is found, the first (or only) existing data Record for that tube is displayed. The search function changes lower case to upper, before conducting the search. It will also find tubes that require a socket adapter (like the 211), which have an asterisk at the end (211\*). You don't need to include the asterisk when you type in the tube no., as the search will still find it.

Buttons are also provided to **Insert** (a new) or **Delete** (the current) data Record. To put a new tube into the tube data file, click **Insert**. Then make the necessary additions and changes to the settings. A tube with 2 sections will need an additional click of the **Insert** button to make room for both sections. Each time the **Insert** button is clicked, the new section (and Record) is added (with a higher Record number) above the current one. See *Data Records* for details about the specific sequence that multi-section tubes should be configured.

To delete the currently-displayed Record, click the **Delete** button. When deleting a tube with more than one section, all its sections should be deleted. Use the **Next** or **Prev** buttons to get to all the sections, and then delete them individually.

## Settings

The settings for the displayed Record are made by clicking the appropriate radio buttons for the Section **Type**, the tube **Socket**, the Section number, and the **Heater Voltage**. Radio buttons also control whether the tube has a directly-heated filament, or an indirectly-heated, unipotential cathode.

### Section Type

Click the appropriate radio button to select the tube section **Type**. This setting is important, because it tells the AT1000 how to test the tube. Multi-section tubes may have different Section Types designated for their sections, or they can have the same Type of sections.

### Socket

These radio buttons determine which **Socket** on the AT1000 the tube will be tested in. For multi-section tubes, all sections must designate the same **Socket**.

## Heater Voltage and Type

The **Heater Voltage** is selected by clicking one of the radio buttons. The type of heater, **Filament** or **Cathode**, must also be selected. This controls whether or not a Heater-To-Cathode leakage test is performed. For multi-section tubes, all sections must designate the same **Heater Voltage** and **Heater Type**.

## Voltage and Current Settings

Text boxes are provided for several other settings, such as **Plate Voltage** and **Current**. To use a text box, first click inside the box, and then type in the value desired. Before the values typed in are saved, they are checked to see if they are out of range. Any value out of range will automatically be limited before the value will be saved.

## Transconductance

The **Transconductance** setting can be displayed in **mA/V**, or in **uMHOs** (micromhos), by selecting the appropriate radio button.

For tubes without a **Screen** grid, such as a triode, the **Screen Voltage** and **Current** should be set to zero.

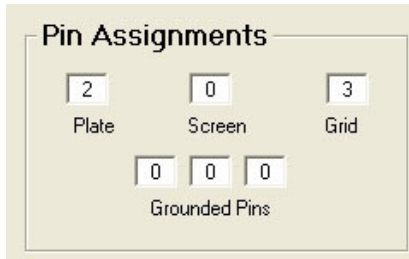
## Pin Assignments

Some text boxes, such as those in the **Pin Assignments** area, will only hold a single character, between 0 and 9, to identify the pin number. A pin number of 0 will not assign any pin. For example, for a triode tube that has no screen grid, a zero should be placed into the **Screen Pin Assignment** text box.

The **Grounded Pins** text boxes allow the connection of tube cathodes, and suppressor grids to ground. A metal tube generally has the metal shell connected to pin 1 (check the tube data sheet to be certain). These electrodes should always be grounded, by entering their pin numbers into one of the Grounded Pins text boxes. Unused boxes should have a zero (0).

Tubes with a directly-heated filament do not need a cathode or heater **Pin Assignment**. The filament is automatically grounded when the **Filament** radio button is selected. Such tubes will need to have a suppressor grid assigned to a ground pin if it is brought out to a separate pin from the filament.

Any unused text boxes, including the **Grounded Pins**, should each have a single zero in them. The 300B is a good example.



## Uploading

Two types of uploads are possible. You can upload from a File, or directly from memory.

To upload from a file, first connect the serial cable between the computer and the AT1000. See the AT1000 manual for instructions to put the unit into "Upload a new tube data table" Mode.

Start the program. Open the COM Port by selecting **COM**, and then the number of the COM port (**1** through **4**), identified earlier.

Select **Upload**, and then **File**. Locate the file you want to upload and click **Open**. The upload will begin.

A message will indicate how many blocks have been sent out of the total amount. When the upload is completed, a message will indicate this, and the AT1000 will automatically reboot with the newly-uploaded tube data. The COM port is closed automatically after each upload operation.

To upload from memory, you must first have opened a file. See **Opening a File** for instructions.

Open the COM Port by selecting **COM**, and then the number of the COM port (**1** through **4**) identified earlier.

To start the upload, click **Upload**, then **Memory**. The upload begins.

A message will indicate how many blocks have been sent out of the total amount. When the upload is completed, the message will indicate this, and the AT1000 will automatically reboot with the newly-uploaded tube data. The COM port is closed automatically after each upload operation.

## Exiting the program

Before exiting the program, save any changes you may have made. See **Saving a File** for instructions. It is not necessary to close the COM port before exit, it closes automatically when an upload finishes, or when you exit the application.

Click the **Exit** button to quit the program.