



# K20W Sound Writer

## USER GUIDE

Kowatec Corporation

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## Introduction

The K20W Sound Writer Programmer is designed to support the following IC:

- **K161004 (10 sec, 4 I/O OTP chip)**
- **K162104 (21 sec, 4 I/O OTP chip)**
- **K164208 (42 sec, 8 I/O OTP chip)**
- **K208511 (85 sec, 11 I/O OTP chip)**
- **K2N341N (341 sec, 15 I/O OTP chip)**

This development system serves two main functions:

- Compiler** – to create a DAT file from user's sound files
- Writer** – to program the DAT file into the voice chip

The **Compiler** is used to combine the edited sound files into the chip to form the desired Voice Group and to define the playback functions of each Voice Group by selecting different Options and Trigger Modes of each individual Voice Group.

The **Writer** is used to program the voice data into the voice chips that resulted from the Compiler Function. The Writer must be connected to the PC to use the program.



## Installation

### Hardware Installation

K20W is a USB based writer programmer. It is intended to be used on computer with Windows XP operation systems.

### Writer Board Connection

- 1) Connect the USB cable from the writer board to the computer. The computer will display a new hardware is found message. The installation will begin automatically.
- 2) If there are too many USB devices connected to your computer at the same time, the current supply from USB may not be sufficient to support the Writer. In this case, an external 5V DC adapter with at least 1A capacity should be connected separately to the power jack (center positive) of the Writer.
- 3) The power LED will be turned ON
- 4) The BUSY LED will be turned ON

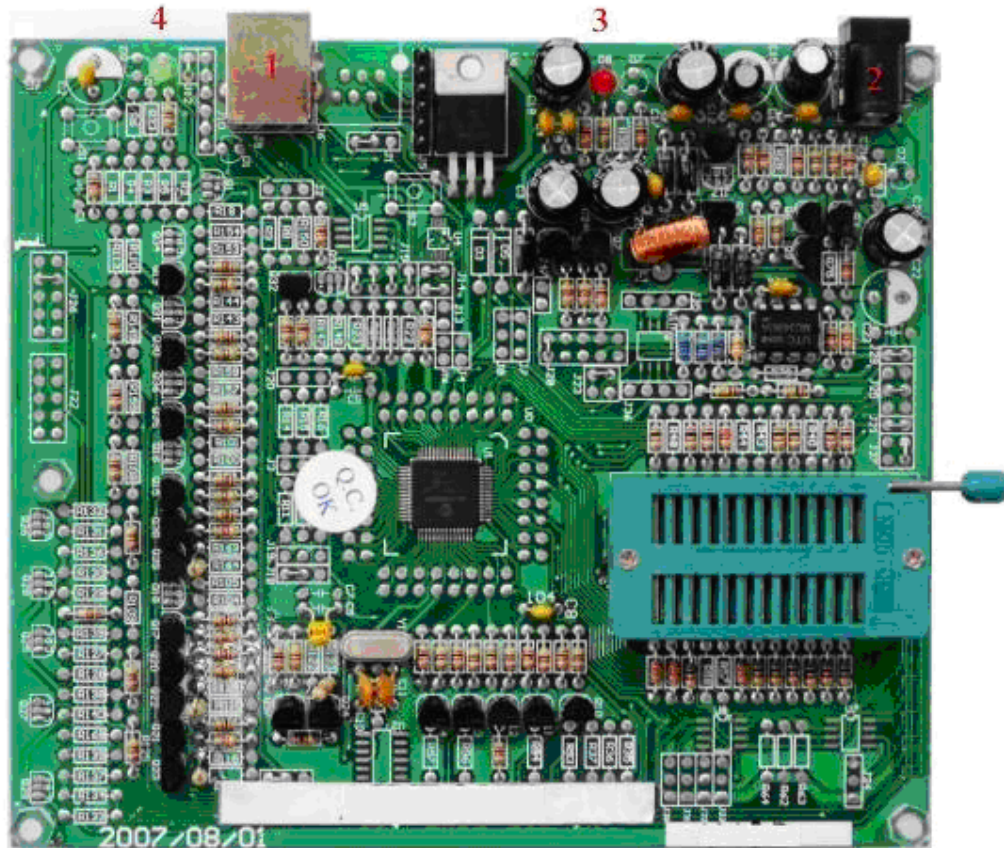


Fig. 1

### Installing the Software

1. Create a new folder on your computer. Copy the K20W\_Vxxx\_yyyymmddttt.ZIP to the folder, where “xxx” represents the version number and “yyymmddttt” represents the date and time of the software. Unzip the file into the folder.



## Running the Software

Double click the file **K20W.EXE** to launch the software. The software will start and check the firmware version on the Writer Programmer board. The following Window will be displayed (Fig. 2).



Fig. 2

### Update Firmware

If the firmware version is correct, the program starts automatically. If the Firmware version is not correct, it will display a firmware update window to automatically update the firmware (Fig. 3).



Fig. 3

Press Y to continue. Then a warning window as shown in Fig. 4 will be displayed as a reminder to not disconnect the USB cable during the firmware update. Otherwise, the Writer Programmer board will be damaged permanently. Press OK to begin the update process.

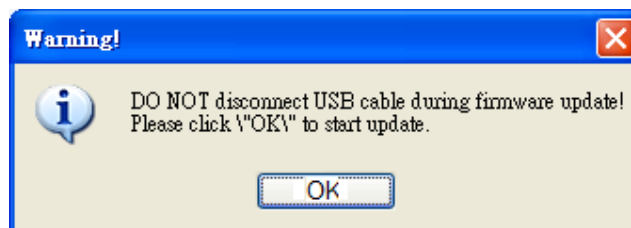


Fig. 4



In case of firmware update failure, an error message window as shown in Fig. 5 will be displayed. If this happens, press Cancel and connect the Writer Programmer board to another USB port of the computer and try to start the program again. Some USB ports of the computer may not have enough power for the firmware update to perform.



Fig. 5

If the firmware update is completed successfully, the software starts automatically.



## Compiler Window

When the K20W USB Sound Writer is launched, the Compiler Window is displayed. The Compiler Window consists of the following areas:

- **Device Selection:** to select which voice chip to be used
- **Trigger Selection:** to determine how the chip to be triggered
- **Voice Output Type:** to select the type of voice output, VOUT or COUT
- **VOUT Volume:** VOUT volume can be selected in some of the voice chip
- **Pin Status Display:** shows the pins status
- **File Display Area:** displays a list of sound files used
- **Voice Group Listing:** shows the available voice groups and the trigger options
- **Function Buttons:** to perform the specific functions
- **Memory Usage:** displays in percentage how much memory is used

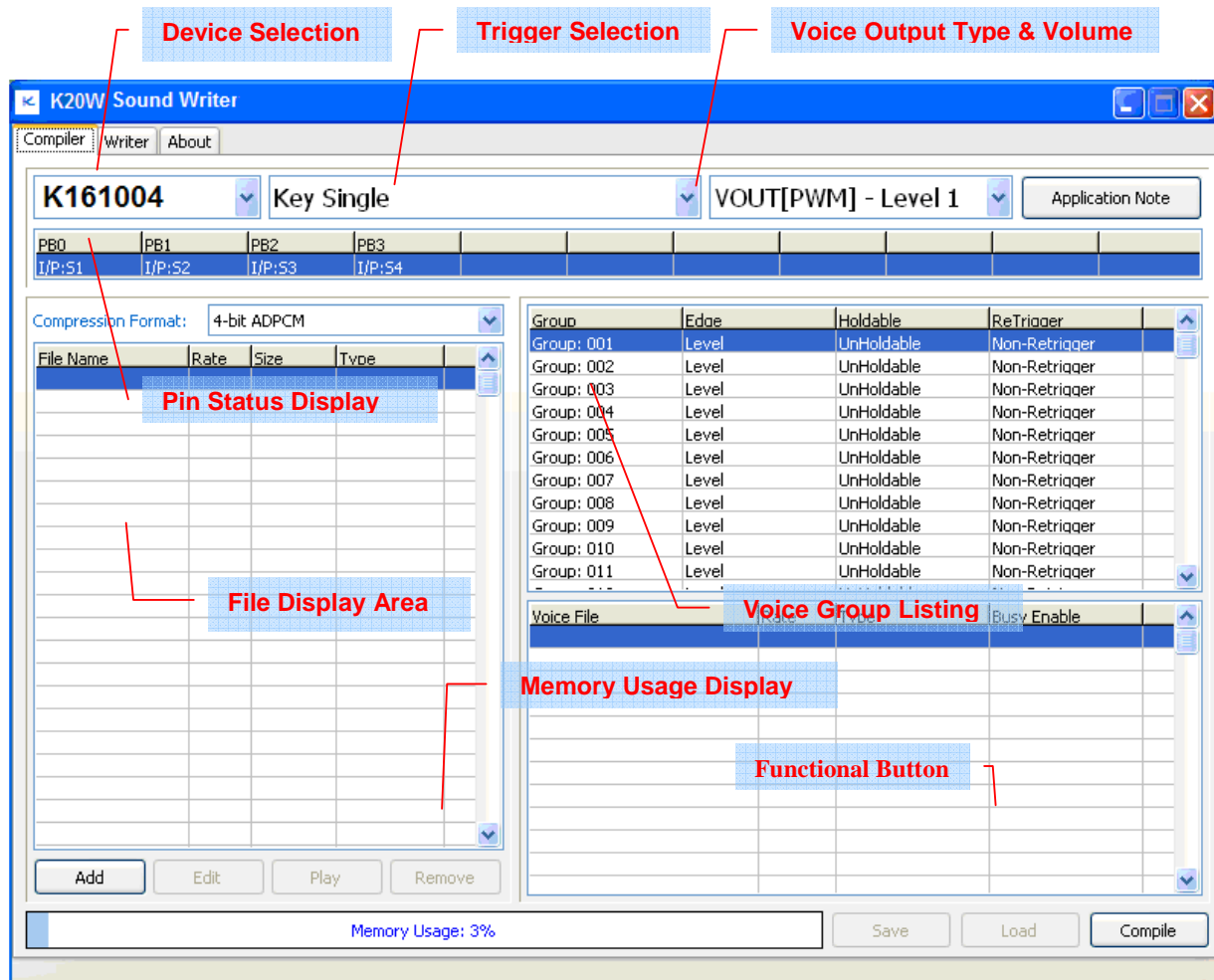


Fig. 6

Voice data and user selectable options must be set up and combined together to create a DAT file for programming into the voice chip. The following procedures describe step by step how to compile the voice data and select the options to produce the DAT file for programming.

### Step 1 – Select Device

- Click the pulldown list to show a list of devices and select the device you want to work on.

### Step 2 – Select Trigger Mode

- Select the type of Trigger Mode you want.

### Step 3 – Select Voice Playback Type and Volume

- Select VOUT(PWM) for voltage mode PWM playback from the Pin VOUT1 and VOUT2, or COUT(DAC) for current mode DAC playback from the Pin VOUT2.

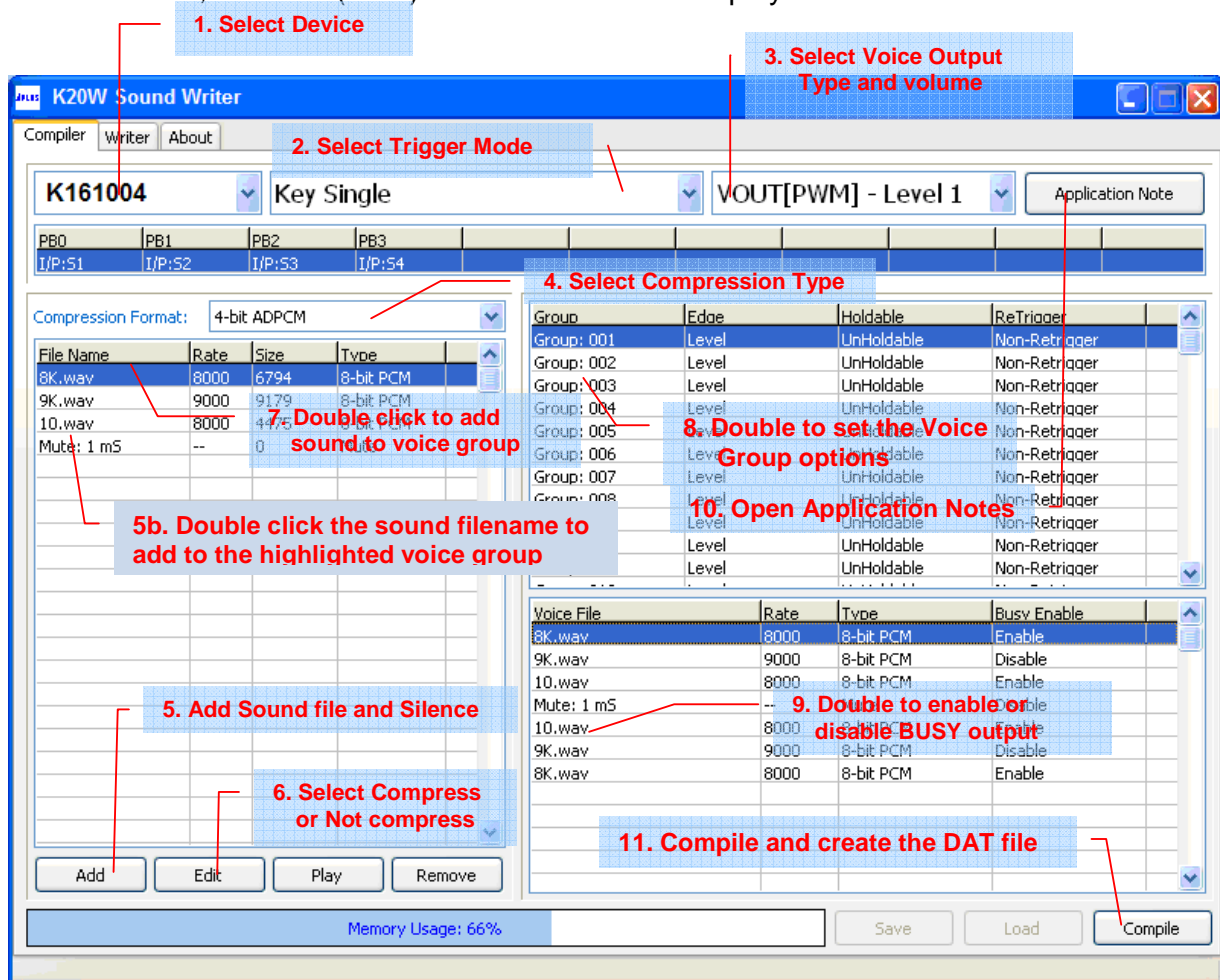


Fig. 7

### Step 4 – Select Voice Compress Type

- Click the pulldown list to select the compress type for the input sound file. Less bit compression type means it takes less memory space to store the sound file. However, the sound quality is better for compression type with more bits.





### **Step 5 – Add Sound files and Mute**

- Click the “Add” button to add sound files or mute sections.
- To remove a file, highlight the file name and then click the “Remove” button.
- To playback a sound file, highlight the file name and click the “Play” button.

Note:

1. Enter the length of mute section in ms. It will not occupy any memory
2. The sound file must be a “WAV” file with **8-bit Mono format**. It is recommended to use GOLDWAVE, COOLEDIT or SOUND FORGE for sound editing.
3. The percentage of the memory used is displayed on the Usage bar below the Add button.

### **Step 6 – Select Mute and Voice settings**

- Click the Edit button to change the setting of Mute or sound file setting
- For Mute section, set the length of Mute
- For sound file, select compression or not compression

### **Step 7 – Add Sound file or Mute to Voice Group**

- Highlight the Voice Group you want to edit.
- Double click the sound file name to add the sound file to the highlighted Voice Group.

Note: You can add any number of sound files. Sound files can be added more than one time and it will not increase the memory usage. Any combination of sound files, silence sections are also allowed.

### **Step 8 – Set Voice Group Trigger Options**

- Double click the Voice Group to set up the Trigger mode of the Voice Group.

### **Step 9 – Set BUSY, Remove Sound File, Change Sound File order**

- Double click on the sound file name will enable or disable the BUSY output.
- Right-click to display a menu to remove or change the order of sound file.

### **Step 10 – Open the Application Note Document**

- Click on the “Application Note” button to open the detailed document about the functions you have selected. You need to have a PDF reader installed on your computer to open this document.

### **Step 11 – To Generate the DAT file for Programming**

- Click on the “Compile” button to create the DAT.



## Writer Window

After finishing the DAT file is created, you can program the DAT file onto the voice chip you have selected. Click the “Writer” tab to display the Writer Window. The following functions are available:

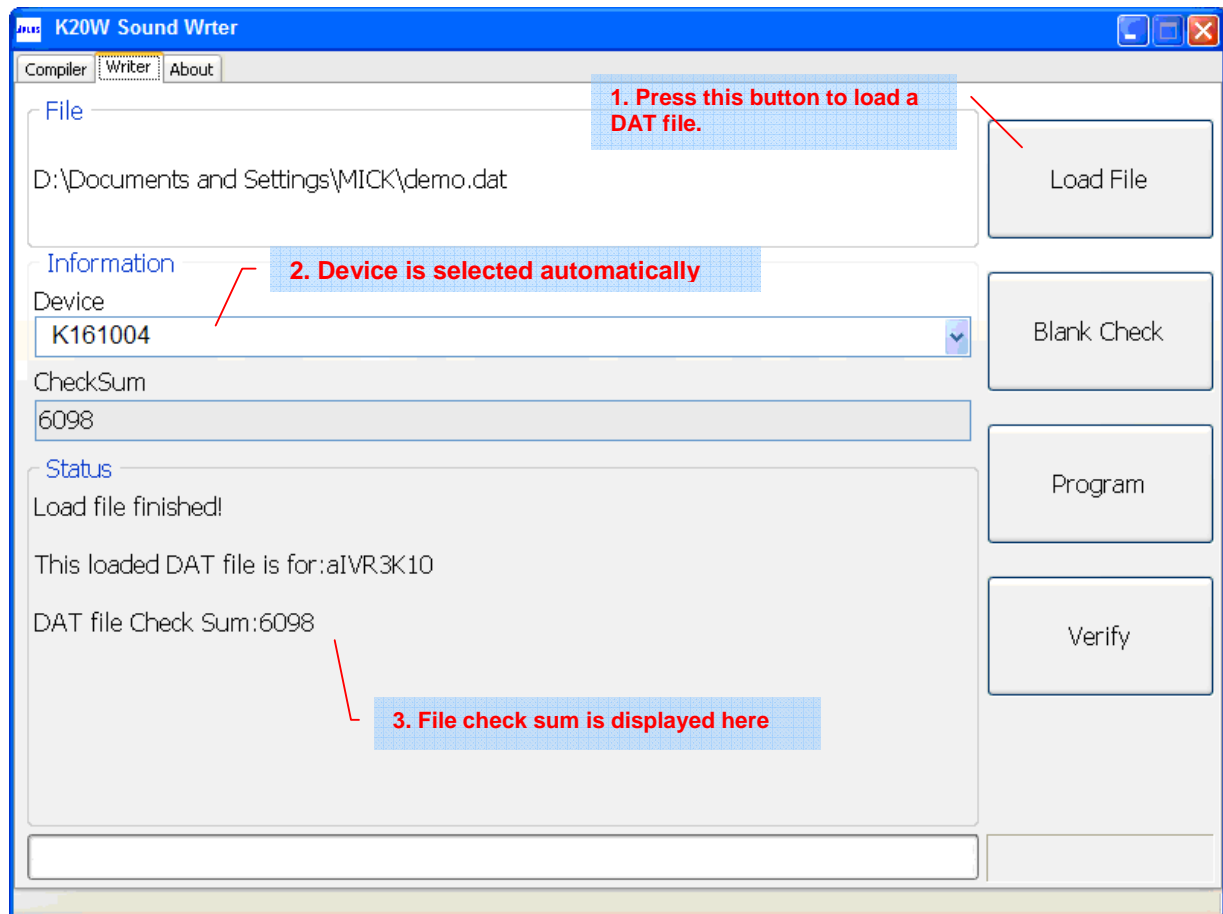


Fig. 8

- **Load File:** To load the DAT file from the computer (Fig. 8)  
After loading DAT file, the correct voice IC will be selected automatically and displayed in the Device list box. The DAT file check sum is also displayed. If the DAT is corrupted, it will have incorrect check sum and will not be loaded.
- **Blank Check:** To Blank check the inserted voice chip (Fig. 9 to 10)  
If the Device list box does not show the voice chip you want, click the pull down list and select the voice chip. See “Inserting Voice IC section” on how to insert the IC on the Writer). Press the “Blank” button to start the blank check.
- **Program:** After blank checking, press the “Program” button to start programming.
- **Verify:** Press the “Verify” button to Verify the data stored in the voice chip.



Note:

1. Once the voice chip is programmed, it cannot be re-programmed.
2. The Green status bar will move from left to right to indicate the operation is in progress.
3. If the operation is completed and passed, the result is displayed in Blue on the Status bar.

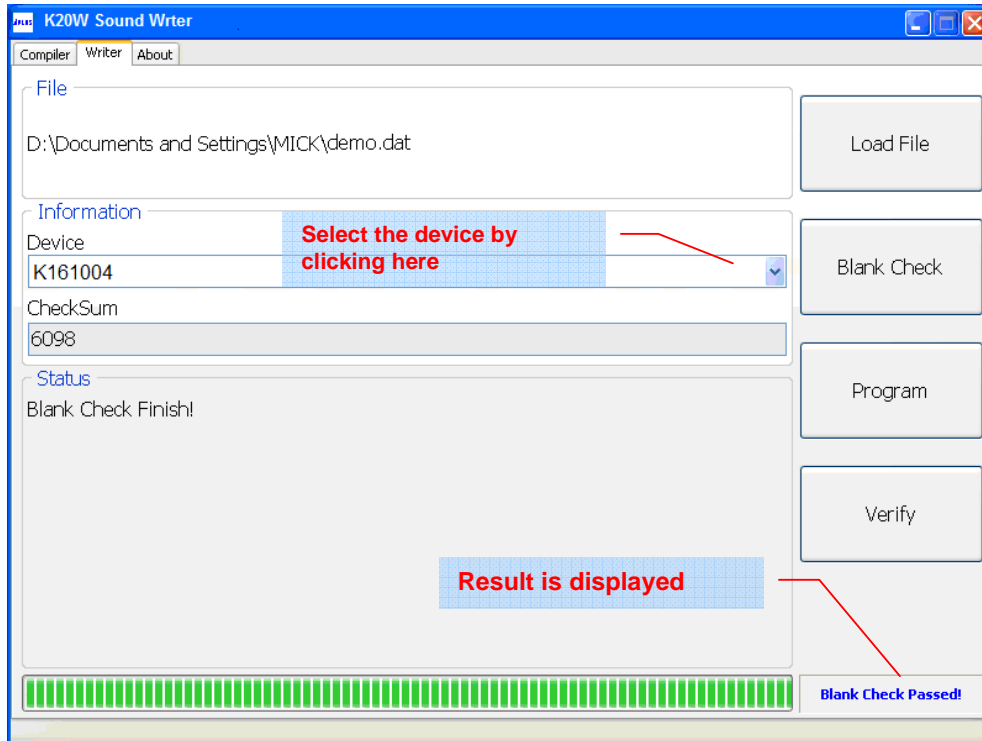


Fig. 9

4. If the operation is completed and failed, the result is displayed in Red on the Status bar.

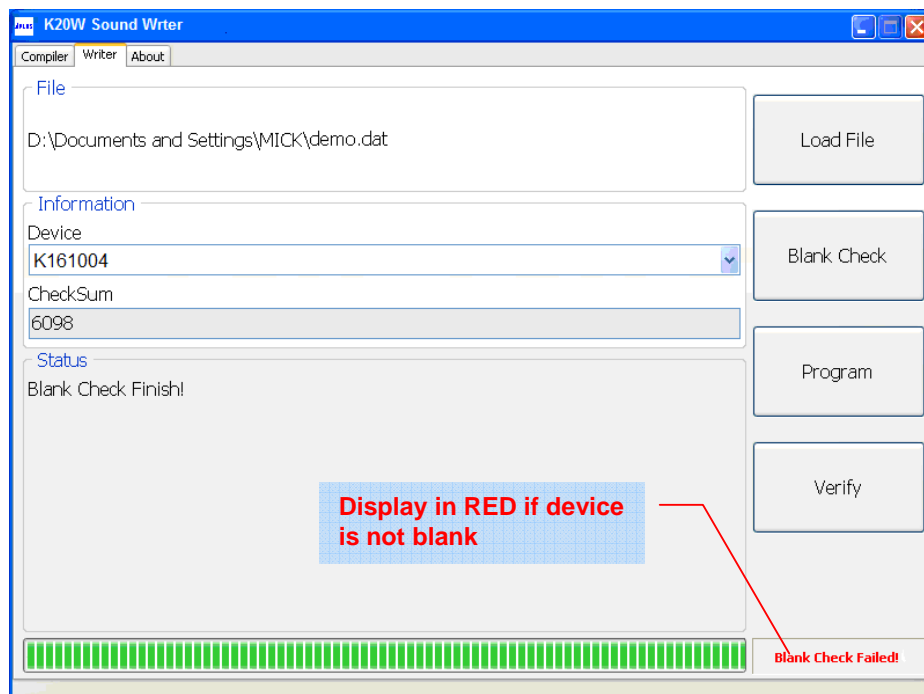


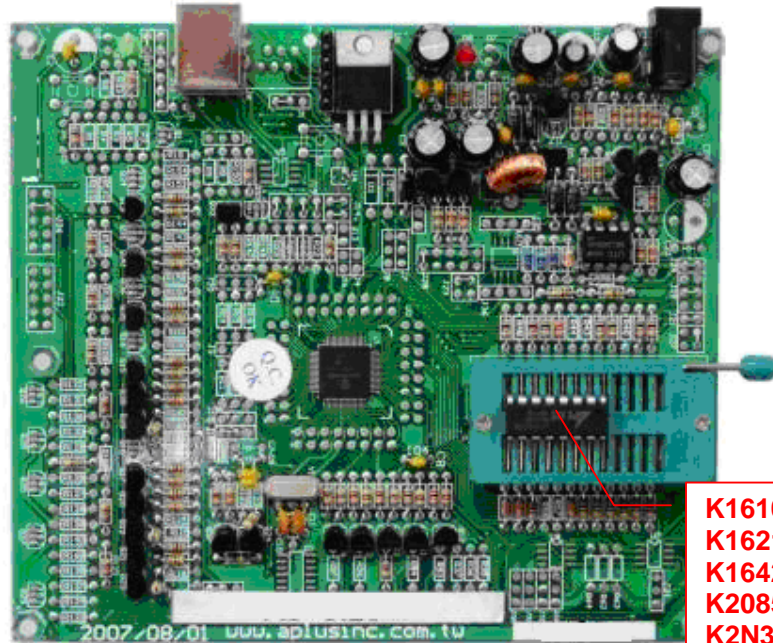
Fig. 10



## Inserting Devices onto the Writer

DIP package devices

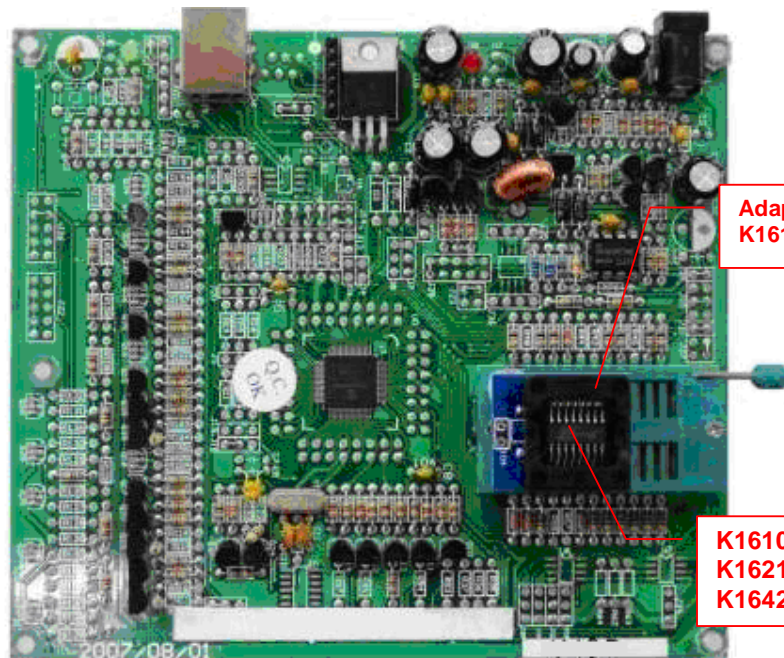
- Device should be inserted align to the bottom of the 24-pin textool socket.



K161004 - 16DIP  
K162104 - 16DIP  
K164208 - 16DIP  
K208511 - 20DIP  
K2N341N - 20DIP  
K2N341N - 24DIP

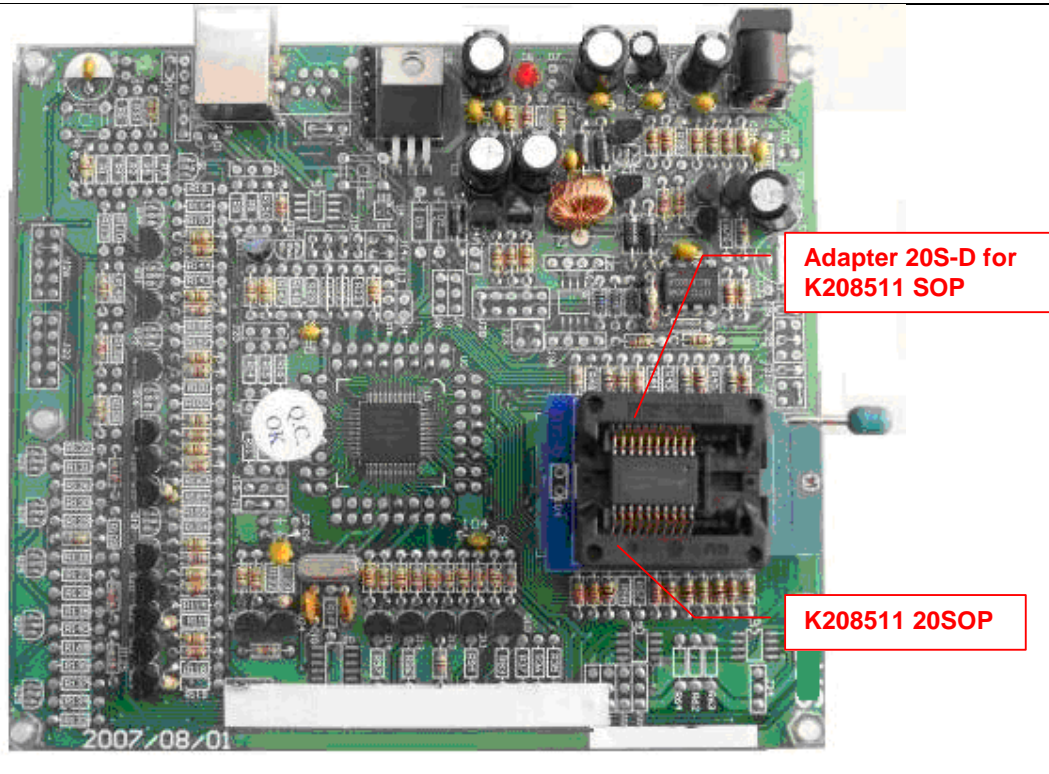
SOP Package

- Additional SOP adapter should be used and align to bottom of the 24-pin textool socket.



Adapter 16S-D2 for  
K161004/2104 /4208 SOP

K161004 - 16SOP  
K162104 - 16SOP  
K164208 - 16SOP



## Technical Support

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