RFID Printer Use Steps

Step One. Install RFID tags and ribbons

1. Put the RFID tag in the paper bin



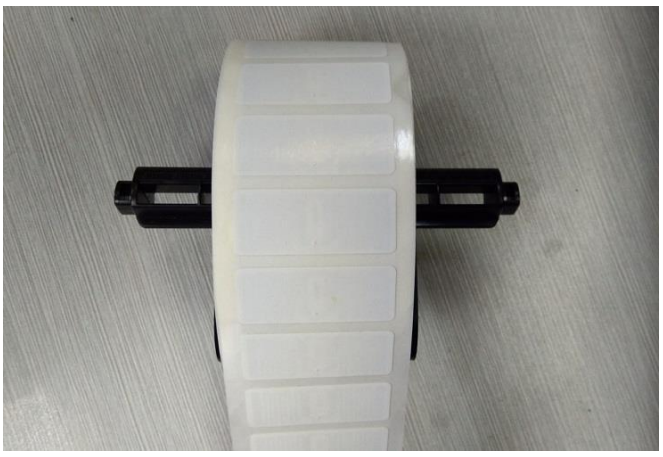
(1) Required accessories



(2) Clamp the Paper Roll Liner on the Media Roll Guide



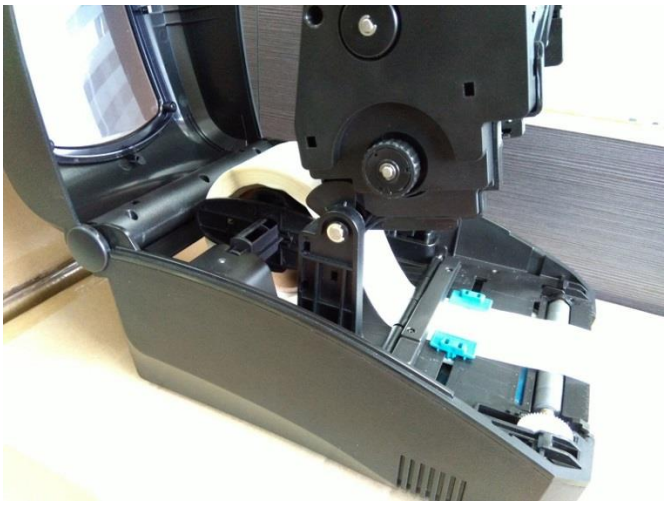
(3) The Media Spindle passes through the label core, pay attention to the direction of the Paper Roll Liner.



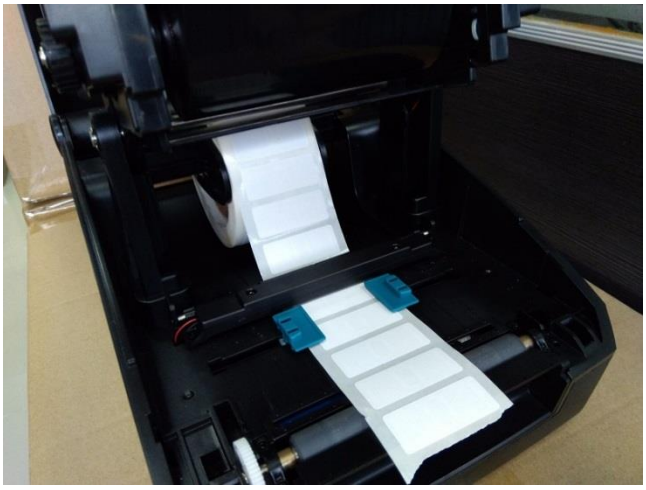
(4) Push in the Media Roll Guide on both sides to center the label, and be careful not to catch it too tightly.



(5) Side view



(6) Put the installed paper roll into the paper bin.



(7) The label must pass the paper guide shaft and push the blue paper limiter to clamp the label.



(8) Close the Printhead Module and press down until it locks into place.

2. Use an external paper holder





If the paper roll is too large and cannot be placed in the printer paper bin, an external paper holder (optional) is required. The installation diagram is shown in the figure above.

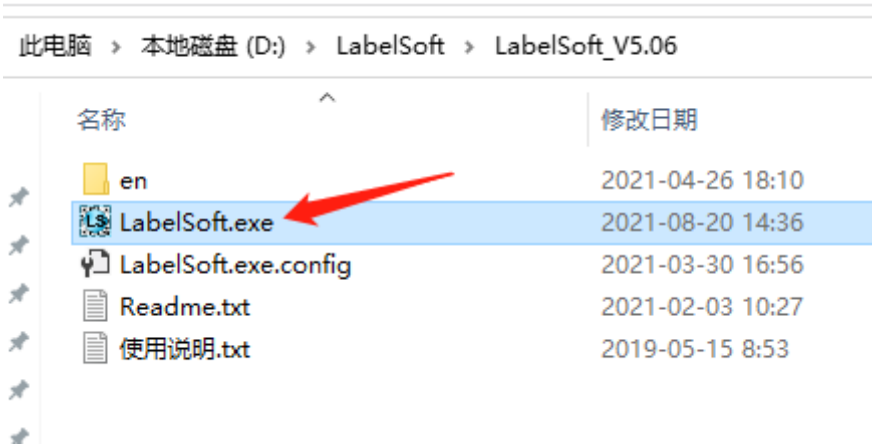
Step Two. Connect the printer to the computer, install the driver and software.

1. Install the printer driver

This step can be omitted. Both the development kit and RFID label editing and printing software LabelSoft support driverless printing.

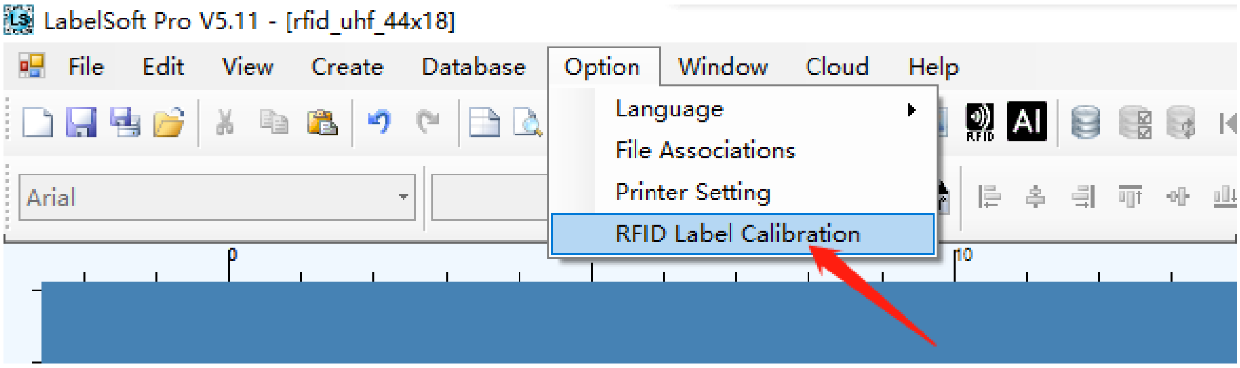
2. Install the label editing software LabelSoft

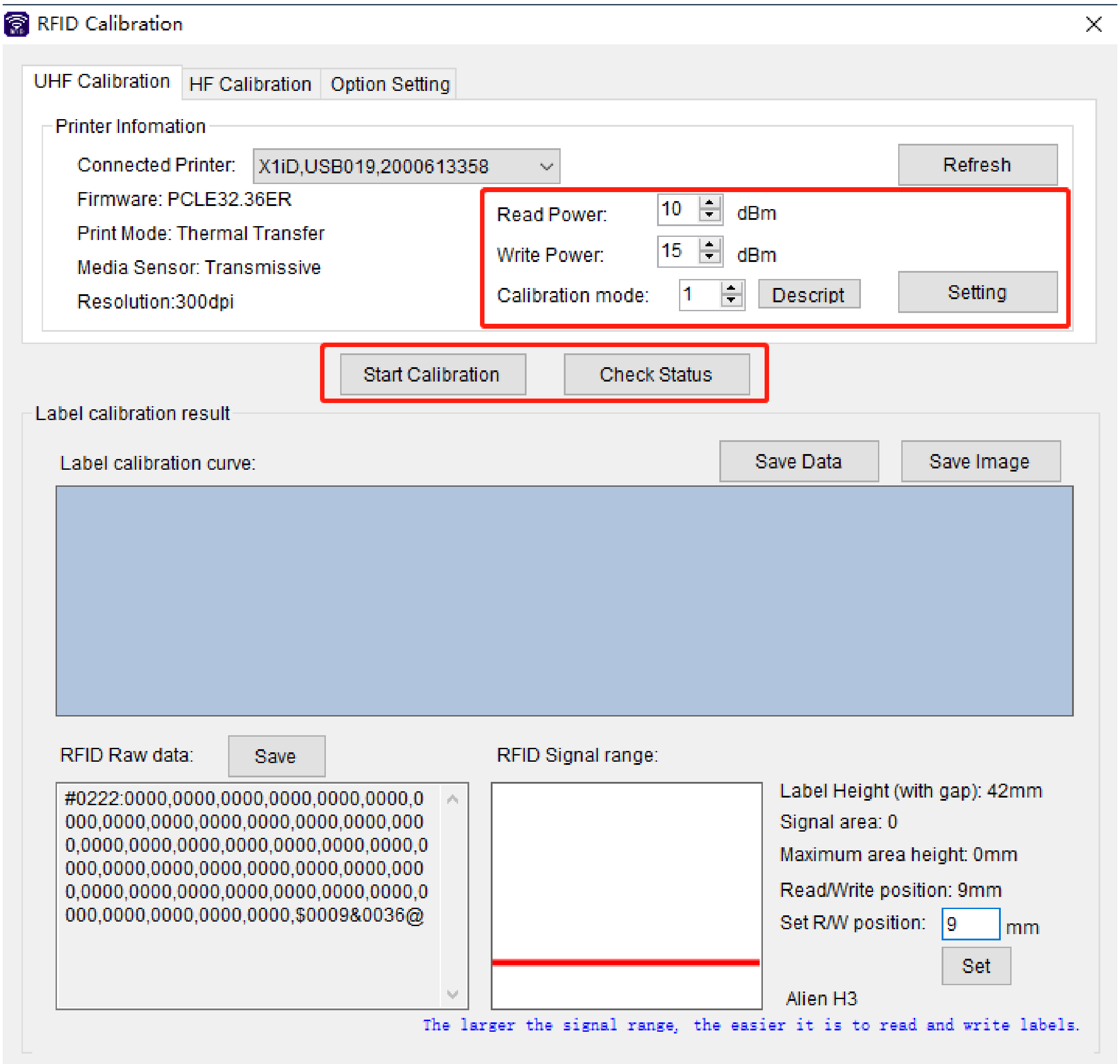
The installation steps can be omitted, LabelSoft supports free installation, unzip it to the directory and open it directly.



Step Three. Calibrate the RFID tag

1. Run LabelSoft, select "Option" -> "RFID Label Calibration" in the menu, then open the visual label calibration tool.

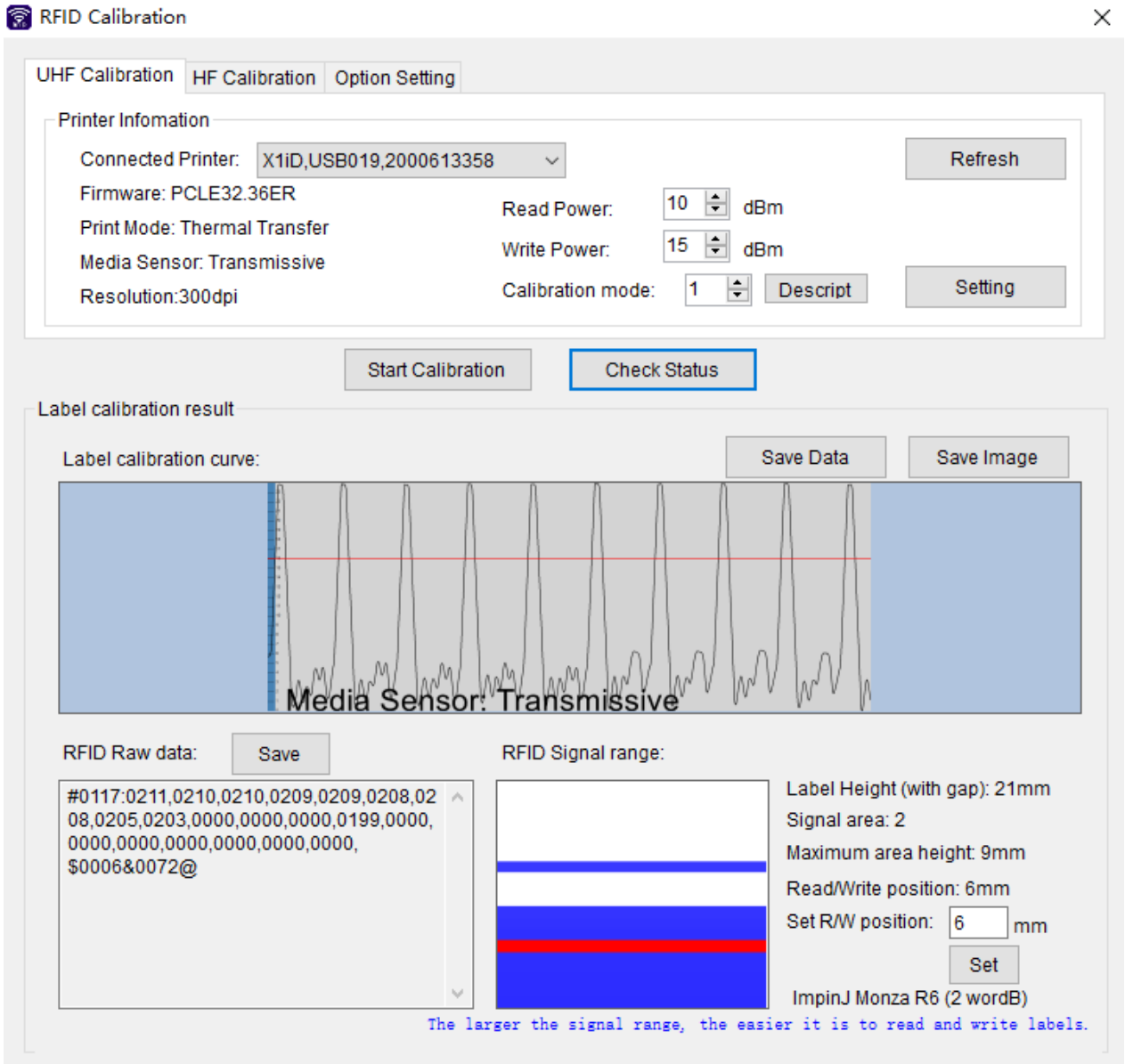




(1) According to the signal strength of the label, you can adjust the read and write power by yourself. After the value change, click the "Setting" button to make the printer take effect. Please note that in general, the value of the write power needs to be 3~5dBm larger than the value of the read power.

(2) After adjusting the read and write power, you can start label calibration, click the "Start Calibration" button.

(3) When the printer stops, click the "Check Status" button to obtain the calibration result of the printer.



RFID tag calibration results

(4) The graph below "Label calibration curve" is the gap detection waveform of the label. A regular curve is usually a normal result. If the waveform is abnormal, the paper sensor may be selected incorrectly. You can use the DIP switch to replace another paper sensor to calibrate again.

(5) If necessary, you can click on the picture under "Label calibration curve" to adjust the detection level of the paper sensor in the new window that pops up.

(6) The graph below "RFID Signal range" is the distribution graph of the RFID signal in the vertical direction of the tag. The blue part is the area with RFID signal, and the red line is the reading and writing position deemed suitable by the printer.

(7) If you need to change the reading and writing position (when the reading and writing position is 12mm, the reading and writing speed is the fastest), you can click the mouse in the blue area to select, and then double-click to set. You can also enter in the text box on the right side of "Set R/W position:" and then click the "Set" button.

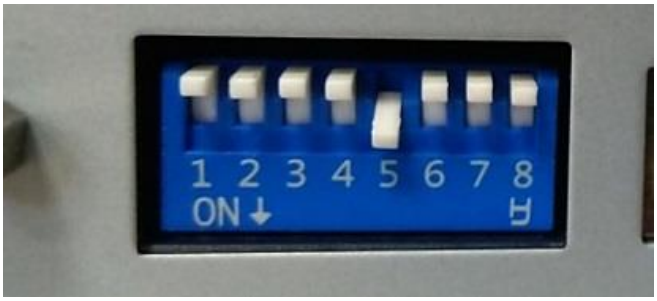
(8) It should be noted that the set read and write position cannot exceed the blue area, otherwise it will cause read and write exceptions.

(9) If there is "2 wordB" on the right side of the chip type displayed at the bottom right of this window, then the data written to the tag must be in units of 4 bytes, otherwise the writing will fail.

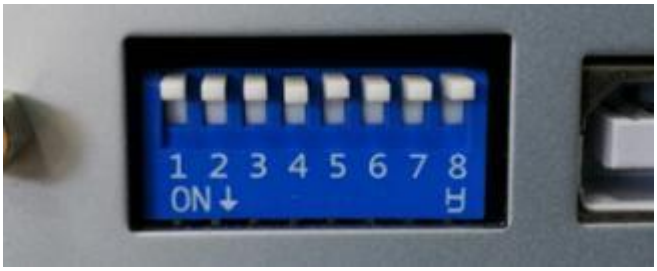
(10) After completing the calibration, please close this window, set the size of the label and place the content to be printed and written in the LabelSoft software, and start printing and writing the label.

2. Description of printer DIP switch

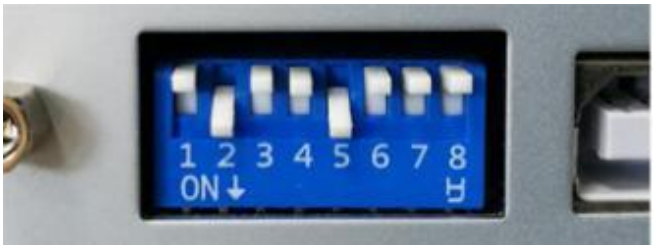
(1) Printing RFID tags with Transmissive Media Senors



(2) Use Reflective Media Sensors to print RFID tags



(3) Use Transmissive Media Senors to print non-RFID tags



DIP switch dial function description:

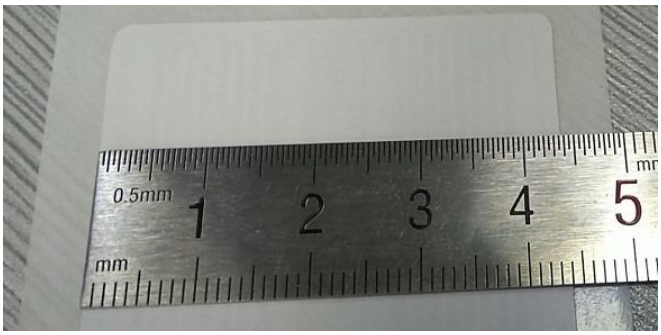
1. Dial down to turn off the ribbon sensor, direct thermal mode; Dial up to enable the ribbon sensor, thermal transfer mode.
2. Dial down to turn off the RFID module, and print ordinary labels; Dial up to enable the RFID module and print the RFID label.
3. Cutter, please keep dialing up.
4. Peeler, Please keep dialing up.
5. Dial down and use the Transmissive Media Senors; Dial up to use the Reflective Media Sensors.
6. For network setting function, please keep dialing up.
7. Use with 8 to set the baud rate of the serial port. Please consult the technical staff for details.

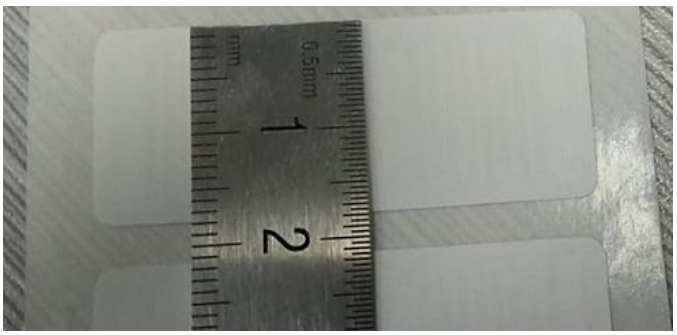
Notice:

After changing the DIP switch, you need to restart the printer.

Step Four. A brief example of LabelSoft setup

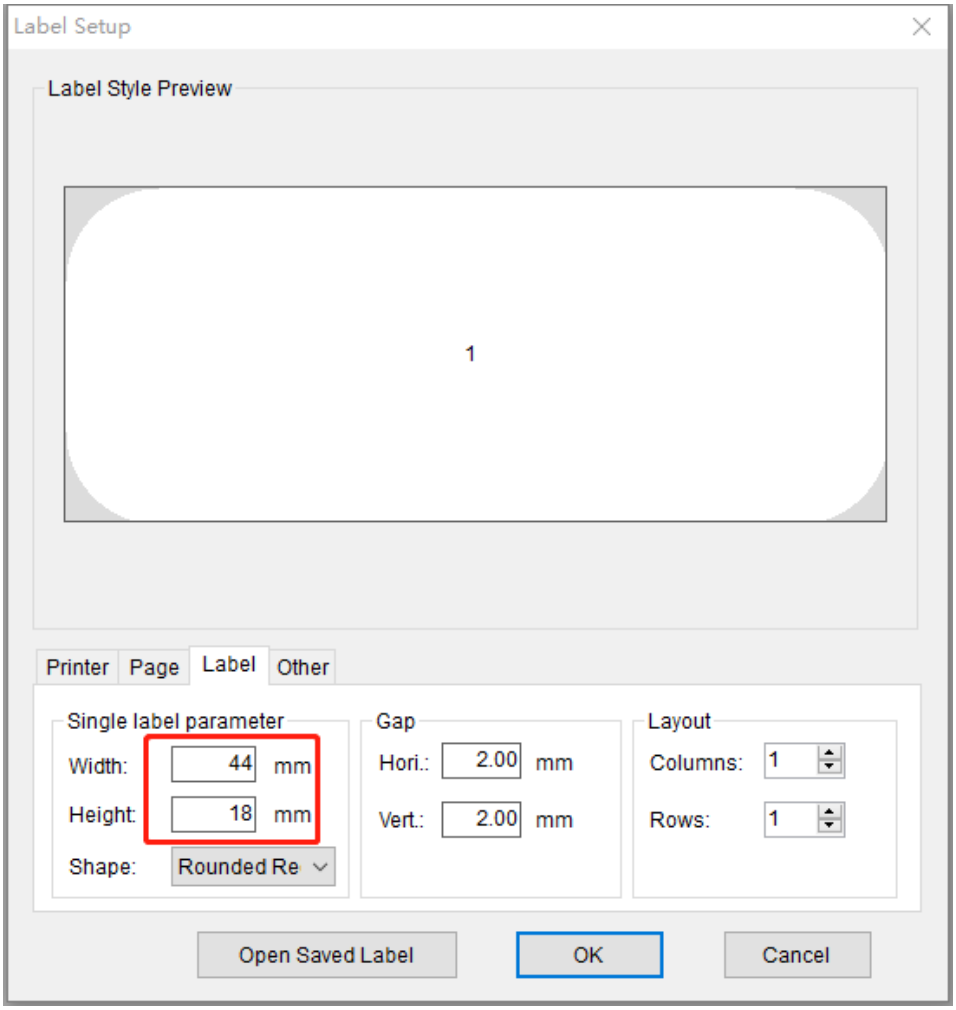
1. Measure the label size





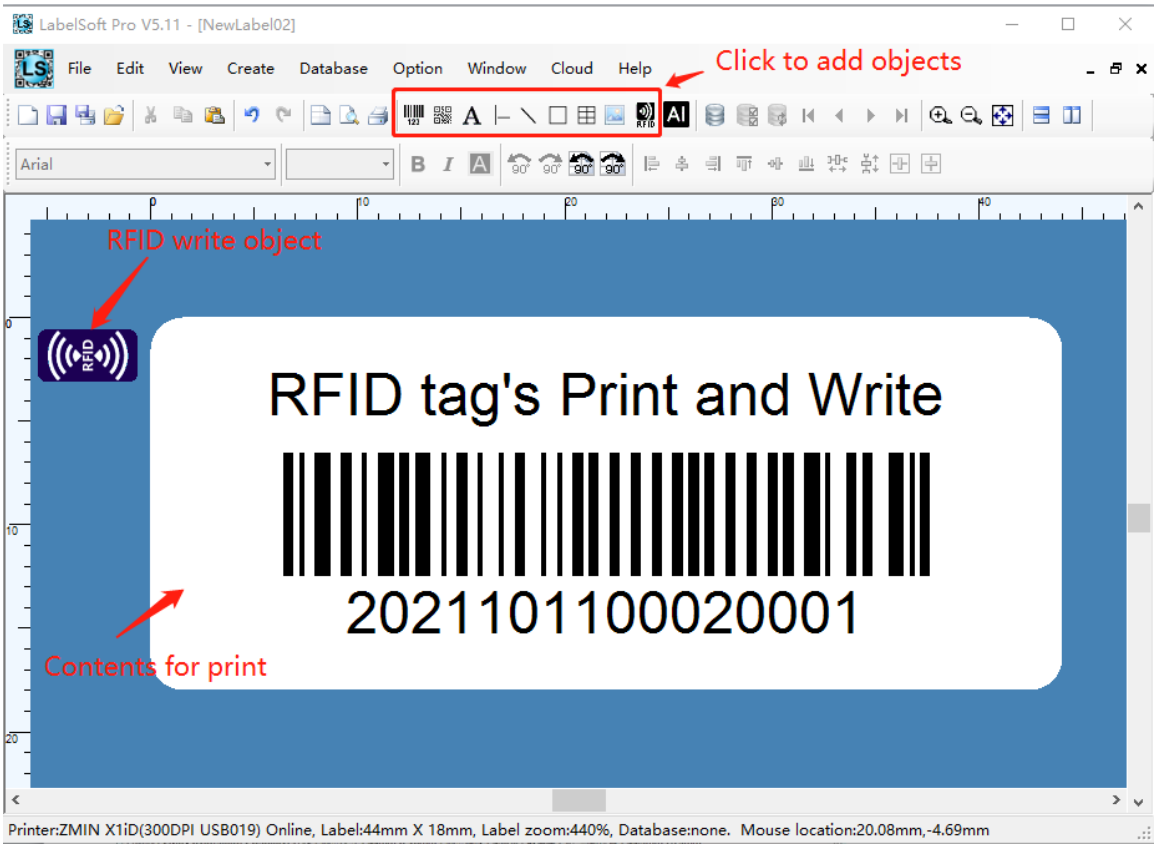
The width of the label measured by the ruler is 44mm, height is 18mm.

2. Set the label size in the LabelSoft software

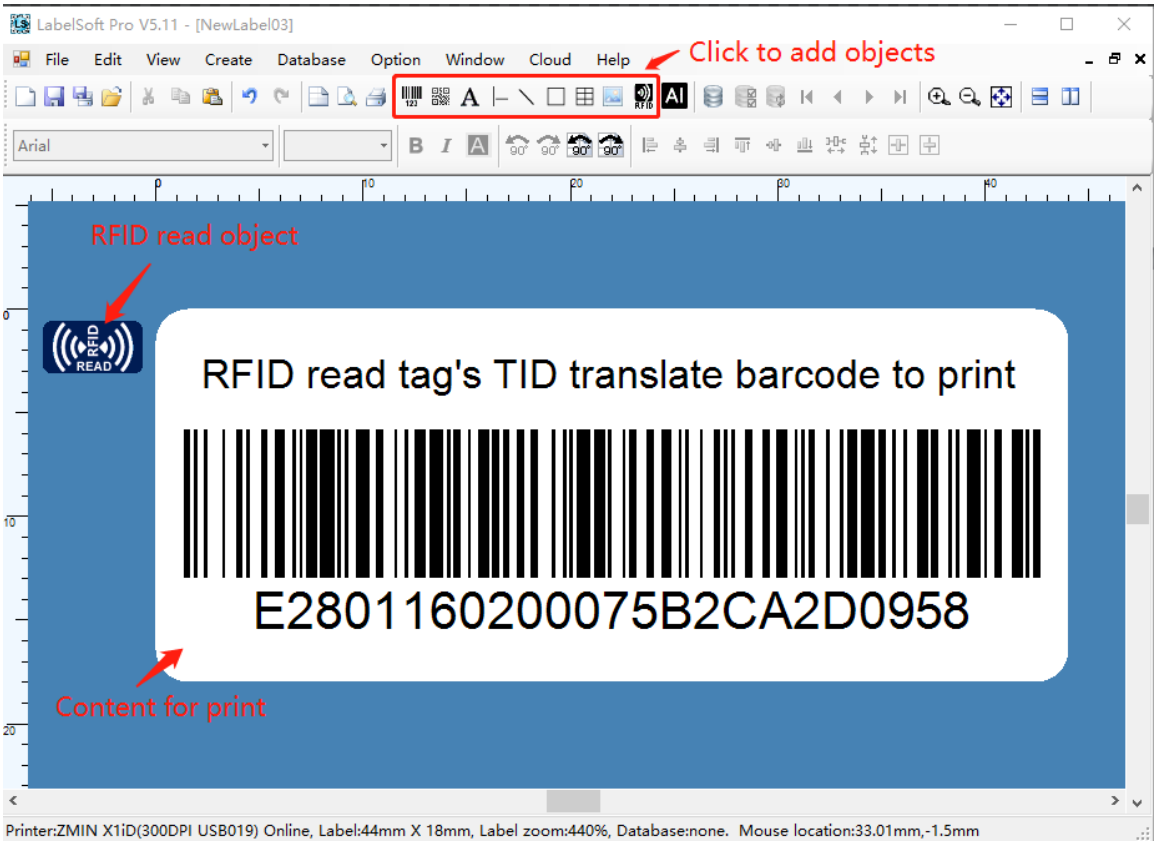


3. Add text, barcode and RFID objects that need to be printed

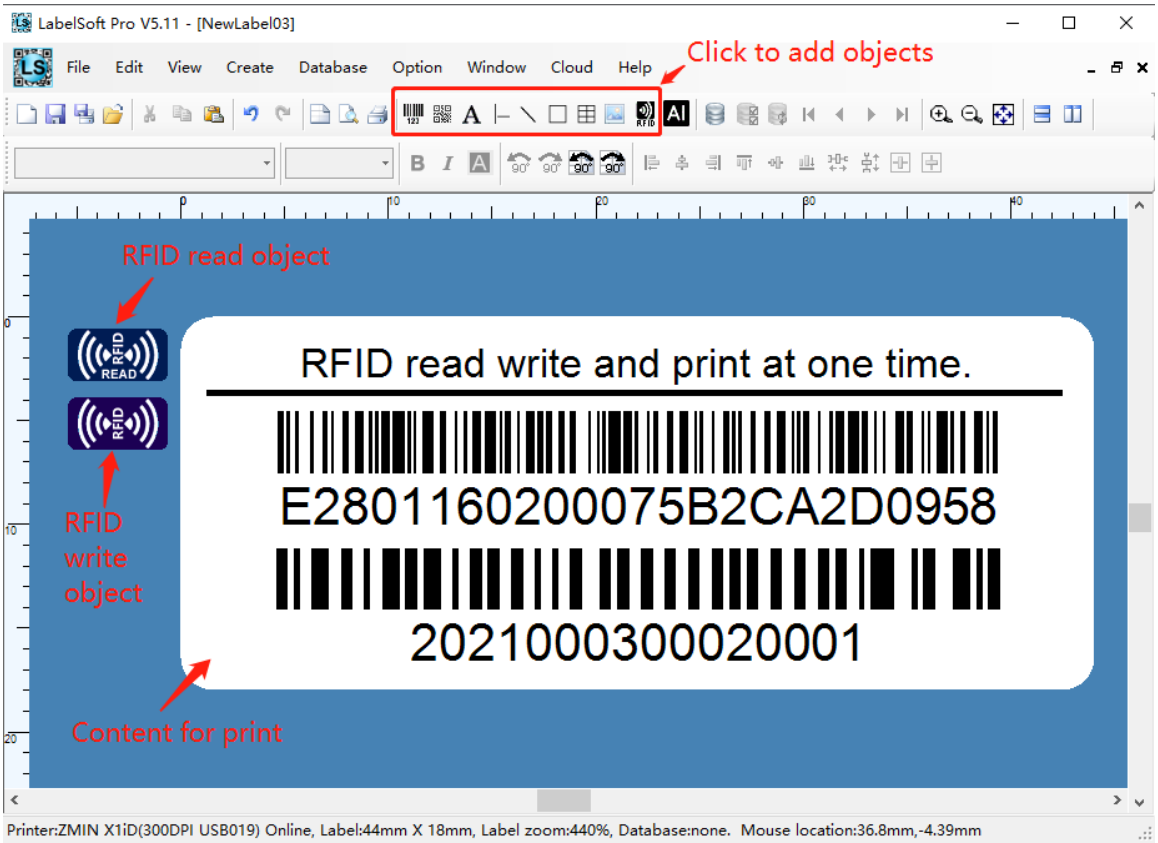
(1) Print and write data to RFID tag at the same time.



(2) RFID read tag's TID translate to barcode for print.



(3) RFID read write and print at one time.



Please note: The format of the data written into the EPC depends on the chip capacity and type. Some chips require writing in units of words (2 bytes), and some chips require writing in units of double words (4 bytes). For better compatibility, we recommend writing data in units of 4 bytes.

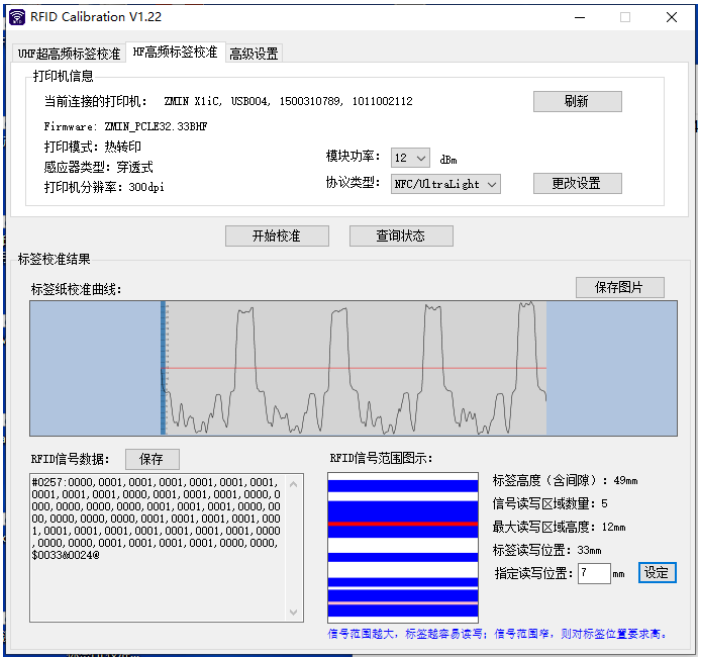
Step Five. exception handling

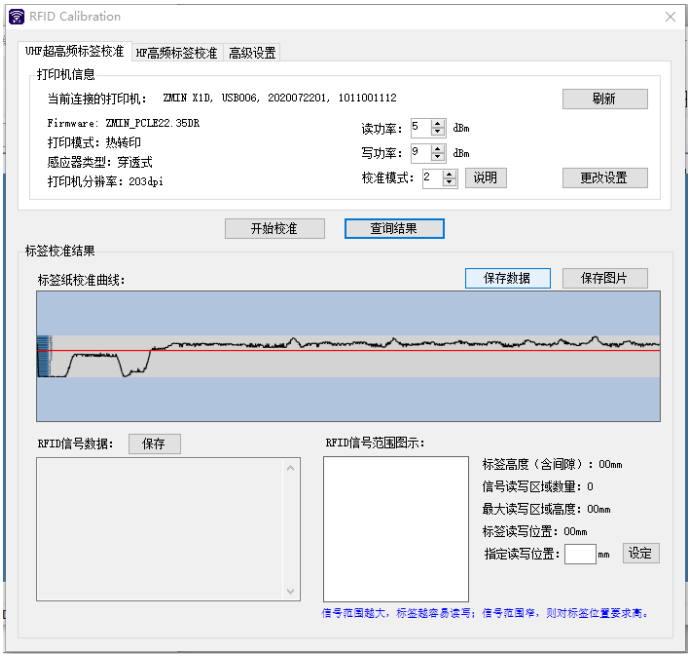
1. Abnormal RFID tag calibration

Calibration abnormalities mainly include abnormal RFID signal distribution (signal is too small or signal distribution is too scattered), label paper calibration curve is irregular, etc.

Abnormal state:

As shown below:

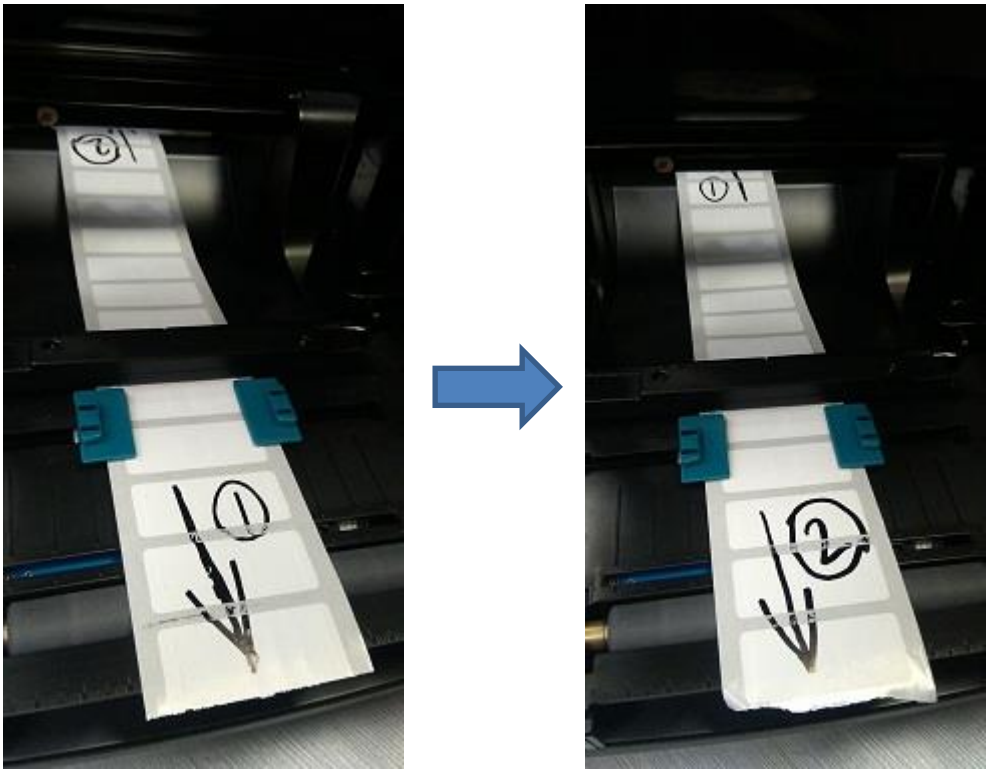




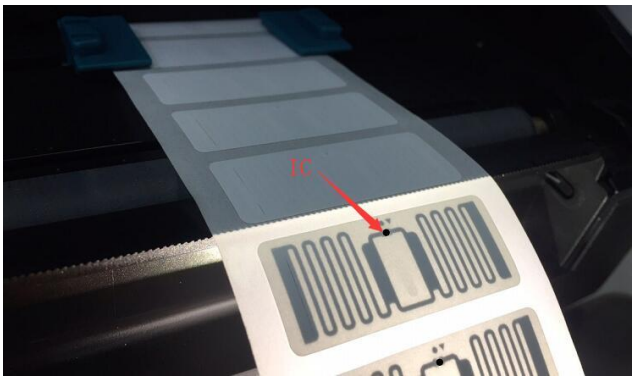
(1) The signal is not ideal, and it is easy to read and write errors. (2) Incorrect tag detection waveform will cause abnormal RFID signal calibration.

Solution 1:

If the situation shown in the figure (1) occurs, please try to turn the label back to forth, and do another calibration.



RFID tags are directional. Generally, the chip is located at the back of the tag, and the signal is relatively stable, which is conducive to the stability of reading and writing, as shown in the following figure:



If the label detection waveform shown in the figure (2) is incorrect, that is, the label paper calibration curve is irregular, the sensor may be incorrectly selected.

Solution 2:

The printer has two sets of label sensors (transmissive sensor and reflective sensor) built-in to locate the height and starting position of each label, RFID reading and writing position, etc. If the tag positioning is abnormal, the RFID signal calibration is also inaccurate.

In general, flexible anti-metal tags use reflective sensors, and other RFID tags use transmissive sensors.

Which label sensor to use is controlled by setting the dip switch on the back of the printer (refer to the printer DIP switch description), the transmissive sensor position is fixed (centered to the left 1cm), the reflective sensor can be moved in the left area .

The following is a schematic diagram of the location of the reflective sensor of a flexible anti-metal tag:



2. The printing process often makes mistakes

The label calibration is normal and the signal distribution is also concentrated, but it often fails in the process of printing and reading.

In this case, first check whether the consistency of the label is normal, that is, do 3 to 5 RFID calibrations to see if the signal distribution after each calibration is similar. If the signal distribution after each calibration is very different, it may be that the label consistency is not good. It is recommended to change another label and try again.

If the signal icons are basically the same after each calibration, it may be due to insufficient writing power (generally 3~5dBm higher than reading power) or inaccurate reading and writing positions due to label slippage. Please check whether the label feeding is smooth. Especially in the case of using an external paper holder, the label should not be catch too tightly, and the paper feeding path should not be bent or blocked by other. In addition, reducing the printing speed can also increase the motor torque. The default is generally 4 inches/sec. When it is adjusted to 6 inches/sec, some labels may jam or slip.

3. Failed to calibrate and print normally

The label calibration is normal and the signal distribution is also concentrated, but the printing and reading fails every times. This situation is most likely because the format of the written data is incorrect. The EPC of the RFID tag has a capacity limit and a limit on the number of write bits. For example, the EPC capacity of 96bits can write up to 12 bytes of data, exceeding it will cause writing failure; most chips require the minimum write unit to be a word (2 bytes), and some chips require the minimum write unit to be a double word (4 bytes). It is recommended to consult the label supplier about the chip capacity and the format requirements of the written data.