| | |
|---|---|
| model | WL-134 |
| dimension | 35 x 36mm |
| frequency | AM 134.2K Hz |
| Power supply voltage<br><br>Pure power supply is the key to long reading distance | 5~9V battery or pure power supply. Using Low Frequency DC-DC or switched mode power supply will affect the reading distance.If AC power supply is used, the system ground must be connected to AC ground (Earth) through 10nF high voltage porcelain capacitor. Ungrounded has no effect on battery power supply, linear power supply will lose 20% of card reading distance, and switched mode power supply will lose 60% of card reading distance.(The switched mode power supply operates at a frequency of 50K-150K and has common mode noise interference, which can seriously interfere with card reading. Connecting system GND to AC ground can effectively filter out common mode interference.) |
| Working current | recommend 80mA@ 6V |
| Working temperature | -40~ +80℃ |
| Default antenna inductance | 580uH micro-henry |

Pin definitions are as follows:

| | |
|---|---|
| 1 | +5V to +9V Pure power supply , recommend 80mA @6V , or 7.4V lithium battery, or 9V battery |
| 2 | RST reset, Low pulse effective ,TTL 5V, After reset the module will read card again. Suspend when not in use |
| 3 | TX serial port number output, TTL 5V level |
| 4 | GND |
| L1 | Antena 1 |
| L2 | Antena 2 (340V vpp) |
| 5V+10R (additional) | 5V power in with series 10R resistance RC filter (optional) |
| 3.3V TX (additional) | TX serial port number output, TTL 3.3V level (optional) |

Reading card distance reference list:

| |
|---|
| Use length 97 x 97mm square antenna reading card distance are as follows |
| 2x12mm glass tube is about 18CM |
| The diameter of 30mm ear tag reading distance is about 36CM |

TX Data format: (ASCII): Baud rate 9600，8N1

LSB MSB

| Head<br>02<br>1byte | Card<br>Number<br>10byte | Country<br>Number<br>4byte | DATA<br>Flag<br>1byte | Animal<br>Flag<br>1byte | Reserved<br><br>4byte | User<br>Data<br>6byte | Check<br>Sum<br>1byte | /Check<br>Sum<br>1byte | Tail<br>03<br>1byte |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

1：02 Head number（fixed）

2：10 bit HEX format ASCII card number，LSB first.

3：4 bit HEX format ASCII country number, LSB first.

4：Data Flag, 0 or 1

5: Aninal Flag, 0 or 1

6: Reseved 7: User Data (it can be rewritten with a writer)

8：Checksum， all 26 bit ACSII HEX XOR

9：Checksum Bitwise invert.

10：03 Tail number（fixed）

For example： on the tag shows: "900250000023921"（Dec format 900 in the front，then card number 250000023921）

Module output: 02 31 37 31 41 39 32 35 33 41 33 34 38 33 30 30 31 30 30 30 30 30 30 30 30 30 30 30 07 F8 03

Equal ASCII： 171A9253A34830010000000000?

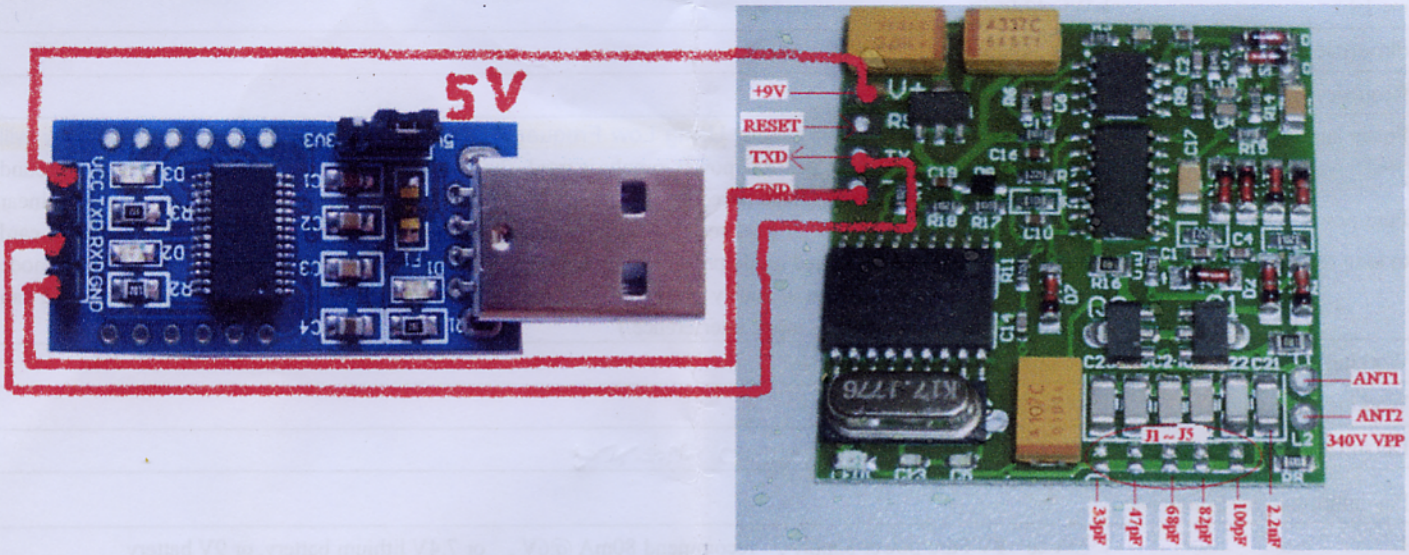
We can find card nuber is 171A9253A3，country number is 4830 （LSB First）

We can translate these number to Dec format，card number equal: 250000023921 ,

Country number equal 900

And "31 37 31 41 39 32 35 33 41 33 34 38 33 30 30 31 30 30 30 30 30 30 30 30 30 30 30" made all XOR caculate，we got the answer is 07 (check sum result) . F8 is 07's bitwise invert result.

( RC filter circuit is recommended to power RFID or Bluetooth module. 10R + 470uF )




How to fine tune antenna jump (for best reading distance) :

Note the capacity of J1 to J5 increases from left to right. The smallest on the left is fine tuning, and the largest on the right is coarse tuning. Debug the resonant capacitor of the module. First, power on the module and erase all jumpers from J1 to J5. Then observe the working current of the module. For example, the initial value is 6V 50mA. First of all, the J5 is short circuited to observe whether the working current becomes larger or smaller. If it increases to 60mA, the total resonant capacitance needs to be increased. Then try to short circuit J4, observe whether the current increases or decreases. If it increases, it means that adding J4 is correct. Keep J4 and try to short circuit J3 again.

If the current becomes smaller when J4 is short circuited, it means that the capacity of J4 is increased too much. Erase J4 and add J3 to observe whether the current increases or decreases.

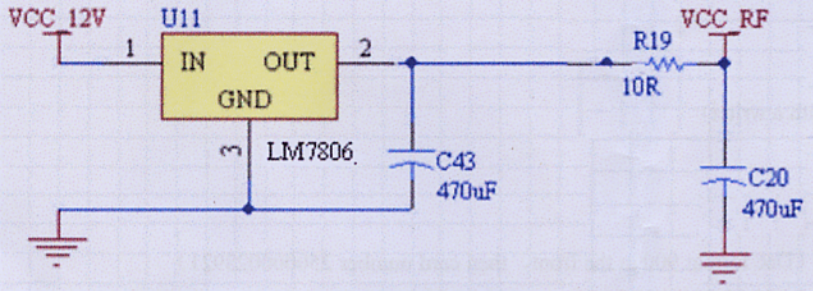
And so on. Finally, the working current is close to the maximum through different resonant capacitor combinations, and the card reading effect is the best.You can ADJUST J1 ~ J5 config, to get highter power current consumption and get best antenna performance. If you must use AC power supply, please use transformer power supply and RC filter to get pure power, Please send email to me to get circuit.

**For any technical support or detailed information, please send email to** ARMLCD@163.COM **If you muse use DC-DC, please use High Frequency DC-DC like MP1540, MP2451,TPS65110, TPS61085 . or Isolated power module B0509, B0512 .**

**It can only read same tag once in 1 second. Antenna has insulating paint Must be welded to the end of the Copper wire**

**Note: If you had to use AC power supply, MUST use linear powe supply to transfer AC 220V or AC110V to DC 12V, and use RC filter circuit shows below to get pure VCC_RF . Module's GND connect to AC Fleld and connect to system GND. Model's working voltage from 5V to 9V.**

**After the antenna is installed in place, readjust the resonant capacitor combination to make the working current of the module close to the maximum value (about 120mA@9V ) At this time, the card reading distance is the farthest.**




Recommended AC power filter circuit. LM7806 can be LM7805, LM7806, LM7808, LM7809

## The key to long reading distance is pure power supply. We strongly recommend that a

**1000uF electrolytic capacitor be connected in parallel at the power supply end, and there is no low frequency DC-DC inductance on the circuit. After the antenna is installed in place, the resonant capacitance is adjusted again. There is no metal or motherboard near the antenna. 7.4V lithium battery is perfect, If 3.7V lithium battery is used for power supply, the effect of MP1540 or TP61085 DC step-up to 6V and put 1000uf electrolytic capacitor filter is ideal .**