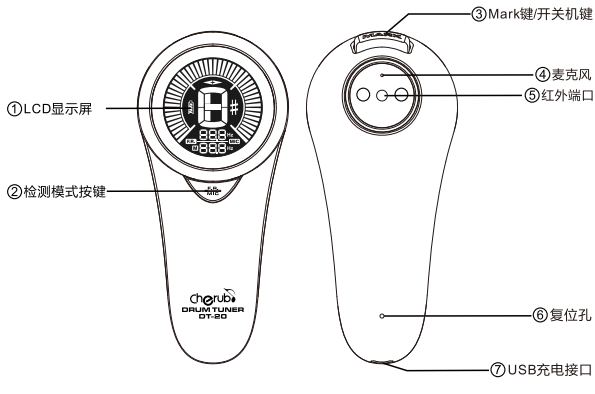感谢您购买小天使DT-20原声鼓光感校音器。蔚科的工程师多年来对原声鼓校音进行深入研究，并结合众多专业鼓手校音的心得和经验，其结晶就是DT-20 - 世界上最先进和最易用的鼓校音器！时尚的外观、强大的算法、加上红外和麦克双模式检测，DT-20可以做到无论在黑暗的舞台还是吵闹的酒吧，都无比精确地检测鼓皮震动的频率，帮助鼓手快捷地把鼓调节到最佳演奏状态！

## 产品特点

● 红外和麦克双检测模式。
● 流线型设计，方便操作。
● 超大彩色LCD屏幕显示，清晰呈现校音结果。

## 产品界面

③ Mark键/开关机键
④ 麦克风
⑤ 红外端口
① LCD显示屏
② 检测模式按键
cherub
DRUM TUNER
DT-20
⑥ 复位孔
⑦ USB充电接口

### LCD显示屏

⑧ 方向指针
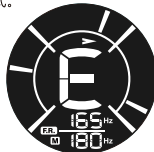⑨ 电量指示
⑩ 音名显示
⑪ 实时频率显示
⑫ 红外模式
⑬ 频率高\低指针
⑭ 麦克模式
⑮ 锁定的参考频率值

## 操作说明

1. 本产品不需要安装电池，通过USB接口充电即可使用。

2. 长按MARK键可开机，再长按一下可关机。5分钟内没有检测到任何信号，DT-20会自动关机。

3. DT-20开启后将实时检测频率，并在屏幕上显示出音名和赫兹值。可按F.R/MIC按键切换用红外或麦克模式。

红外模式　　　　　麦克模式

为了达到更好的检测效果，将红外端口/麦克风对准被敲击的位置，高度距离鼓面约为2厘米为宜，此时DT-20将会自动读取震动频率并计算出音名，显示在屏幕上。

4. 当音名和赫兹显示在屏幕时，短按MARK键可锁定当前的频率作为参考值。此时，屏幕最下方红色的数字就是锁定的值。再次短按MARK键可以解除锁定。

5. 锁定参考值后，再次敲击鼓皮，DT-20将会显示再次检测到的频率和参考值，并且指针将指示你要转动调节鼓钉的方向，以帮助你你把当前频率调到与参考值一致。当敲击的频率低于锁定的参考值时，方向指针会顺时针方向转动，同时向右的频率指针亮起，提示您需要将鼓钉往顺时针方向拧动；当敲击的频率高于锁定的参考值时，方向指针会逆时针方向转动，同时向左的频率指针亮起，提示您需要将鼓钉往逆时针方向拧动；当敲击的频率和锁定的参考值一样时，指针会停止转动并全部亮起，即表示两个音高完全一致。

6. 如屏幕中低电量图标显示"[]"，请进行充电。

⚠ 注意：如果机器出现死机等意外情况，请使用复位功能恢复到出厂设置：按住MARK键，同时短按一下复位孔，等屏幕显示到正常开机状态后（屏幕全显），松开MARK键，即可完成复位功能。
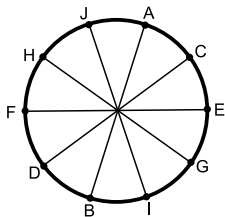
## 鼓校音基本方法

鼓的校音基本上就是把所有牵引鼓皮张力的鼓钉调节到张力一致，从而使靠近每个鼓钉的鼓皮音高达到一致，使整块鼓皮得到均匀的音色。与只能测试张力的传统鼓校音器不同，DT-20的特别之处在于它直接检测鼓皮的震动频率，从而更直观的显示出音高状态。

### 1. 调节鼓皮

● 从每个鼓钉往鼓面中心约5厘米的位置敲击鼓皮。听听音高是否均匀。打开DT-20的电源，并根据环境情况选择用红外或者麦克模式检测。

● 调节任意一个鼓钉到喜欢的音高，然后按下MARK键锁定此频率为参考值。

● 按下图指示对角交错的方式逐个调节鼓钉，把所有位置调到与参考值一致。最终使整个鼓面调整到平衡状态。



### 2. 调节顶部和底部

建议先把顶部鼓皮和底部鼓皮调到音高一样，然后再实验不一样的音高。

● 如果想得到最长的延音，可以把顶部和底部鼓皮的音高调到完全一致。

● 把底部鼓皮的音高调得比顶部鼓皮低，可以得到更深的类似咆哮的音色。把底部调得比顶部低三度或者五度是常用的方式。

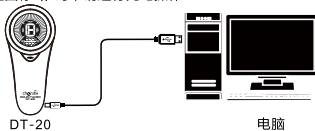● 把底部鼓皮的音高调得比顶部鼓皮高，可产生音调向下坠的感觉，延音会短一些。

### 3. 通鼓之间的音程

● 先从最小的高音通鼓开始调音。

● 通常相邻两个通鼓的音程从高音到低音可以调为 I－III或者I－IV。
注意: 落地通鼓的音高不要太接近底鼓的音高。

## 电池充电

本机内置锂电池，当显示屏出现低电量图标"▯"时，请进行充电操作：

⚠ **注意:** 为了保证电池的使用寿命和安全，请使用随机附带的USB充电线充电。



DT-20          电脑

⚠ **注意:** 我们的产品使用的是聚合物锂电池，在使用产品前，请先行给本产品充电; 若长时间不使用，超过三个月后给本产品充电一次或激活。

## 技术规格

● 校音范围：50-500Hz
● 信号检测模式：红外、麦克
● 正弦波精度：0.1Hz
● 反应时间：500ms
● 电源：USB充电锂电池（满电可连续使用5小时）
● 体积:123(L)x56(W)x56(H)mm
● 重量：105克
＊技术规格如有变更，恕不另行通知。

## 注意事项

● 使用环境：
  1.避免在高温、潮湿、零下等恶劣的环境中使用。
  2.避免在强光下使用。
● 请勿自行拆卸本机。
● 请保存好本手册以便以后查阅。

## 随机附件

●操作说明书  ●USB充电线  ●产品合格证

## 质量承诺

亲爱的 **小天使** 用户：

在您使用 **小天使** 产品时，请仔细参阅产品说明书，当您有疑问和困难时，请拨打售后服务热线：400-990-9866

■ 一周内出现质量问题可退货退款    ■ 一年内出现质量问题可免费维修
■ 一月内出现质量问题可调换        ■ 终身享有咨询和维修服务

[请向销售商索取有效购买凭证并予以保存]

## 换修政策

一、包换政策：
  1.消费者自购机之日起1个月之内，在正常使用情况下，出现非人为的产品性能故障，且产品外观及包装保持完好的可向所购机的经销商换机。
  2.消费者在换机时应出示由经销商开出的购机收据及保修卡，否则经销商可以不予更换。
二、保修政策：
  产品在购买之日起1年内，可免费享有维修服务；对于超过1年的产品及人为或不可抗力因素造成损坏的产品，我司可提供有偿维修服务。

## 有关产品中所含有害物质的说明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。
本资料适用于2007年3月1日后本公司所制造的产品。

环保使用期限



此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在制造日起的规定期限内，产品中所含的有害物质不致引起环境污染不会对人身、财产造成严重的不良影响。环保使用期限仅在遵照本产品使用说明，正确使用产品的条件下才有效。不当的使用，将会导致有害物质泄漏的危险。

产品中有毒有害物质或元素的名称及含量

| 部件名称 | 有害有毒物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅(Pb) | 汞(Hg) | 镉(Cd) | 六价铬(Cr(VI)) | 多溴联苯(PBB) | 多溴二苯醚(PBDE) |
| 外壳(壳体) | × | ○ | ○ | ○ | ○ | ○ |
| 电子部件(印刷电路板等) | × | ○ | × | ○ | ○ | ○ |
| 附件(电源线、交流适配器等) | × | ○ | ○ | ○ | ○ | ○ |

○: 表示该有害有毒物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。
×: 表示该有害有毒物质至少在该部件中的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。因根据现有的技术水平，还没有什么物质能够代替它。

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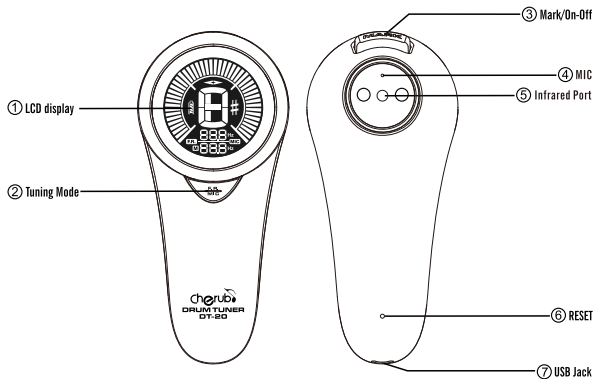珠海市蔚科科技开发有限公司  售后服务部
邮编：519085

Thank you for choosing Cherub DT-20 Infrared Drum Tuner. Cherub's engineers have studied into the acoustic drum tuner for years and also combined with the tuning experience of many professional drummers, finally launch the most advanced and easiest drum tuner in the world-DT-20! Fashionable appearance, powerful algorithm. DT-20 has dual infrared mode and MIC mode, can detect the vibration of the drumhead precisely and fast even in dark stage or noisy club, help to tune the drum to the best condition!
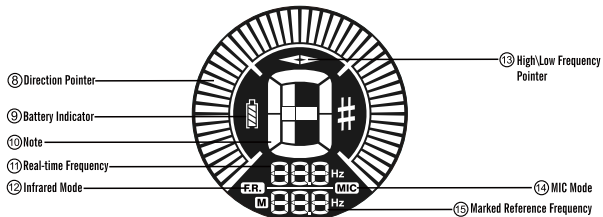
## Features

● Infrared mode and MIC mode.
● Streamlined design, very easy to use.
● Extra large color LCD display.

## Product Description

③ Mark/On-Off

④ MIC
⑤ Infrared Port

① LCD display

② Tuning Mode

⑥ RESET

⑦ USB Jack

### Display Interface

⑧ Direction Pointer

⑨ Battery Indicator

⑩ Note

⑪ Real-time Frequency

⑫ Infrared Mode

⑬ High\Low Frequency Pointer

⑭ MIC Mode

⑮ Marked Reference Frequency

## Operation Instruction

1. DT-20 does not need to install the battery. You can recharge it through micro USB jack.

2. Long press MARK to turn on/off DT-20.  If there is no signal detected for 5 minutes, DT-20 will turn off automatically.

3. DT-20 can detect the frequency in real time when power on, and shows the note and HZ on the screen. Press F.R/MIC button to choose the detecting mode.

Infrared Mode                    MIC Mode

To get better result, please aim the infrared port/ MIC to the position you hit. The advisable height to the drum head is 2cm. At this time DT-20 will detect the frequency automatically and show the result on the screen.

4. When note and HZ value show on the screen, short press MARK can mark the current frequency as reference. The red letter at the bottom of the screen is the marked value. Short press MARK again can unmark the value.

5. After marking the reference, hit the drum head again, DT-20 will show the current frequency and the reference value. The direction pointer will show you the direction that you should rotate the lug. It will help you to tune the current frequency to the same value as the reference. When the current frequency is lower than the reference, the direction pointer will rotate in clockwise direction. At the same time, the right pointer will light up. It reminds that you should screw the lug in clockwise direction. When the current frequency is higher than the reference, the direction pointer will rotate in counter-clockwise direction. At the same time, the left pointer will light up. It reminds that you should screw the lug in counter-clockwise direction. When the current frequency is as same as the reference, the pointer will stop rotating and light up all. It means the two frequencies are totally the same.

6. If the low battery icon " 🔋 "shows on the screen, please recharge DT-20 through micro USB jack.

⚠ NOTE:

If DT-20 occurs crash or other accident, please click the RESET to restore to factory settings: press and hold MARK, and click RESET at the same time; after the screen shows normal on state (full display), please release the MARK, then the reset is completed.
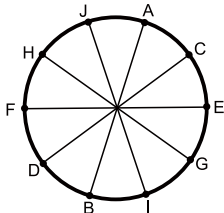
## The basic idea to tune a drum

The basic idea to tune a drum is to make sure that all of the tension rods holding the head on have the same tension at each lug. So that the pitch can sound the same at each lug as you tap near it. DT-20 is different from other traditional drum tuners which can only detect the tension. It can detect the frequency directly.

### 1. Tune the drum head

● Hit the head 5cm in front of each lug of the drum, listen if the sound is the same at each lug. Power on DT-20 and choose Infrared Mode or MIC Mode due to the environment .

● Choose one lug and adjust the tension to get a pitch you like, then press MARK button and mark the pitch as reference value.

● Adjust the lugs in a crisscross pattern as shown below. Make all the positions have the same value with the reference.



## 2. Tuning between the Top and Bottom Heads

It is suggested that you tune the top and bottom heads to the same pitch at first, then you can try the different pitch.

● If you want to get the longest sustain, you can tune the top and bottom heads to the same pitch.

● If you tune the bottom head lower than the top, you can get a deep sound with a lot of sustain as well as a pitch drop or "growl".

● If you tune the bottom head higher than the top, you can get a pitch-drop sound, although it is a bit shallower and has a shorter sustain.
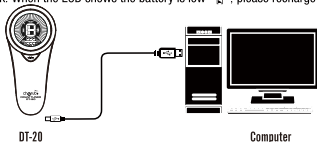
## 3. Pitch Interval Between Tom Drums

● Start with your smallest tom and tune the top head close to the pitch where it resonates well. Please be careful not to tune it too low.

● Basically you can tune the pitch interval between two tom drum to I – III or I – IV from high pitch to low pitch. Please be careful that the tom on the floor should not be tuned too close to the kick.

## Battery Charge

DT-20 can be recharged through Micro USB jack. When the LCD shows the battery is low " 🔋 ", please recharge it as soon as possible.

⚠ NOTE: To ensure the battery life and safety, please use the attached USB cable to recharge the unit.

DT-20                                        Computer

⚠ NOTE: Our product uses Li-polymer battery, before using the product, please charge the battery first. When not using for a long period, charge or activate it in 3 months.

## Specifications

● Tuning Range: 50-500Hz
● Detecting Mode: Infrared, MIC
● Accuracy: 0.1Hz
● Responding Time: 500 ms
● Power: USB Rechargeable
● Dimensions: 123(L)x 56(W)x 56(H)mm
● Weight: 105g

＊Specification may change without notice.

## Precautions

●Environment:
　1.Do NOT use the tuner in high temperature, or high humidity, or subzero environments.
　2.Do NOT use the tuner in the direct sunlight.

●Please do NOT disassemble the tuner by yourself.

●Please keep this manual for future reference.

## Accessories

●Owner's manual          ●USB charging cable

### THE FCC REGULATION WARNING (for U.S.A.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

●Reorient or relocate the receiving antenna.

●Increase the separation between the equipment and receiver.

●Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

●Consult the dealer or an experienced radio/TV technician for help.

### CE mark for European Harmonized Standards

CE Mark which is attached to our company's products of Battery mains the product is in fully conformity with the harmonized standard(s) EN 61000-6-3:2007+A1:2011 & EN 61000-6-1:2007 Under the Council Directive 2004/108/ EC on Electromagnetic Compatibility.

www.cherubtechnology.com                              Made in China