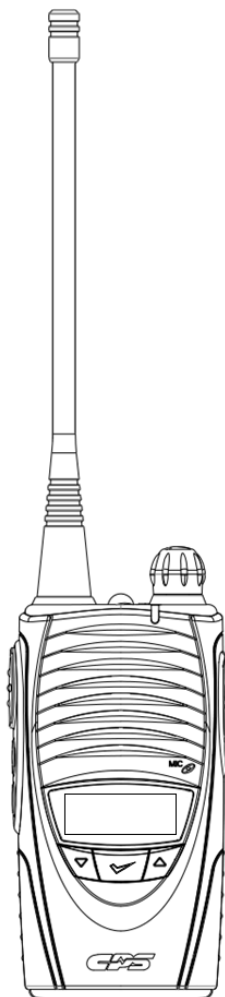# CP396

DMR Handheld Transceiver

User Manual

1. 概述

凭藉最新及先进的技术，CP396 DMR 专业对讲机提供小巧而坚固耐用的设计，配合简单而易用的功能。

【功能描述】

➢ 内置 16 个区 32 个频道（1 个区可选 32 个频道）
➢ 频率范围 ： 400–470 MHz/136–174 MHz
➢ 512 个频道选择
➢ 可进行英文和中文选择
➢ 高低功率选择
➢ 短信发送和接收功能（最多 40 个字符）
➢ 加密模式
➢ VOX 声控发射功能
➢ 独身工作模式
➢ 频道扫描
➢ 5 级声控发射
➢ 繁忙信道锁定
➢ 发射限时功能
➢ 紧急呼叫功能
➢ 内置手电筒
➢ 录音和播放功能（63 段, 每段 2 分 30 秒）
➢ 模拟及数字程式自动检测
➢ 5 级静噪水平（模拟模式下）
➢ 空中遥毙功能
➢ 1W 音频功率输出
➢ 点阵液晶显示（可同时显示 3 行文字）

【配件】

➢ CB33 7.4V 2600mAh 高容量锂离子电池
➢ CS33 充电座 & CWC33 电源适配器
➢ U 天线 / V 天线
➢ 用户使用手册

2. 详述

一般资料

频率范围	CP396U: 400-470MHz　　CP396V: 136-174MHz
频率误差	±1ppm(-30℃～+60℃)
频道数	16 区×32 频道
频道间隔	12.5KHz
数字声码器	AMBE++
尺寸	119mm（高）x 58mm（宽）x 38mm（厚）
重量	245g
电源	7.4V 2600mAh
放电电流	接收模式音频输出 420mA（最大音量时）
（最大）	发射模式 1200mA 待机模式 110mA

接收机

灵敏度	0.25uV 12dB SINAD
静噪灵敏度	0.22uV 10dB SINAD
邻道选择性	65dB(12.5KHz)
杂散和谐波抑制	75dB
哼声和噪声比	40dB(12.5KHz)
音频输出	1W/16Ω
音频失真	＜3%（额定音频输出）
音频响应	+1, -3dB（300Hz 至 3KHz 6dB/oct 的去加重特性）
输入阻抗	50Ω

发射机

发射功率	CP396U/V:1-5W
杂波辐射	70 dB
哼声和噪声比	40 dB
谐波失真	≤3%（1KHz 音频调制）
音频响应	+1, -3dB（300Hz 至 3KHz 6dB/oct 的加重特性）
输出阻抗	50Ω

3. 外观及显示说明

天线
电源开关&音量旋钮
PTT 键
皮带夹
取消/返回按键
可编程按键
电池
下键
菜单/确认键
上键
扬声器插孔
麦克风插孔
麦克风

皮带夹

天线接口　　　　电源开关&音量旋钮　　　　电池锁扣

照明灯

LED 灯

可编程按键

加密功能

声控　　　　　　　扫描　　　　　收信箱

高功率　　　　　　　　　　　　　　　　键盘锁

信号度
度显示　　　　　　　　　　　　　　　　　　　　电量显示

　　　　　　　　　　　　　　　　　　　　　　DM:直通模式
D: 数字制式　　　　　　　　　　　　　　　　　RM:中转模式
A: 模拟

　　　　　　　　　　　　　　　　　　　　　区域号

频道号　　　　　区域
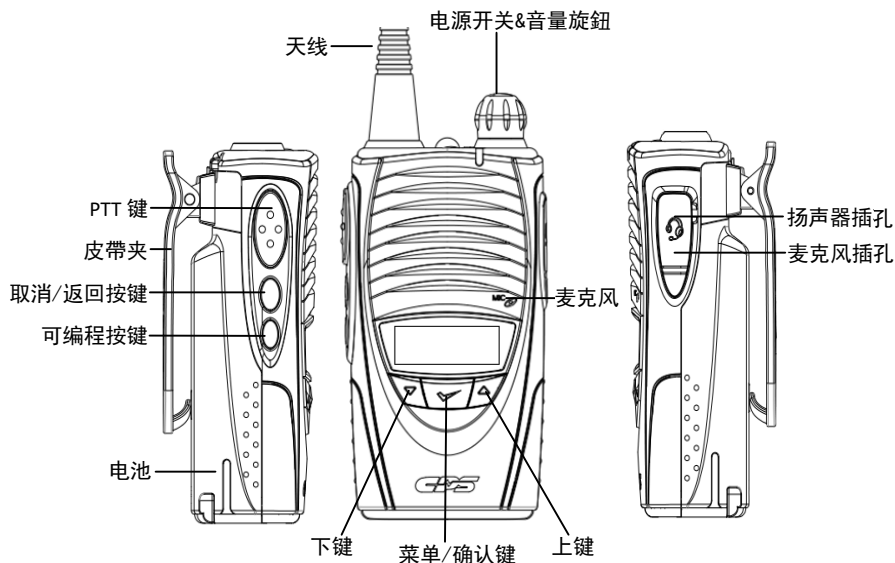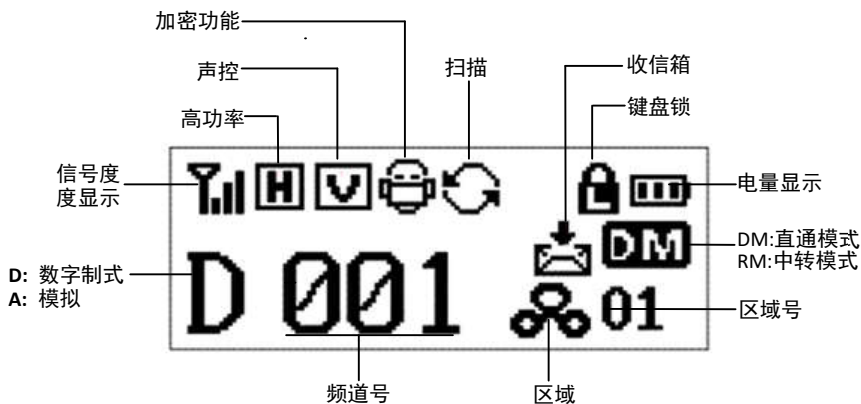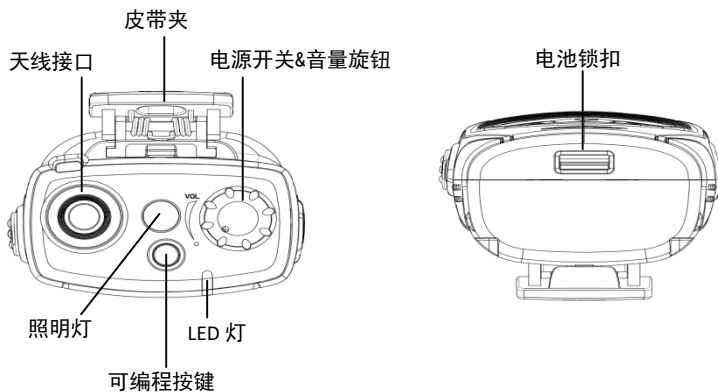
4. 安装和拆卸

天线安装和拆卸
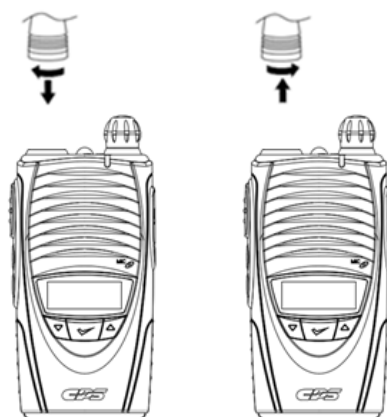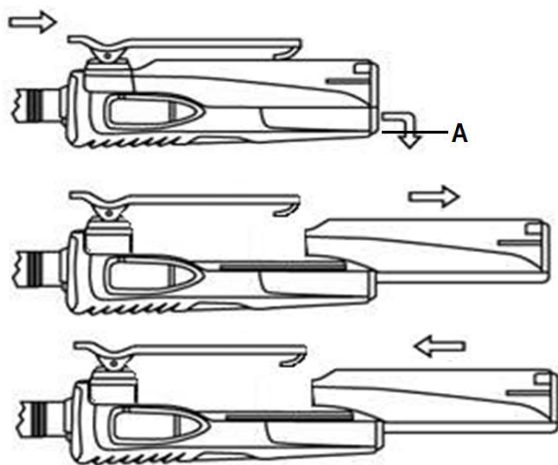
装配天线时，对准天线座并顺时针扭紧天线；逆时针旋转天线可拆下天线。

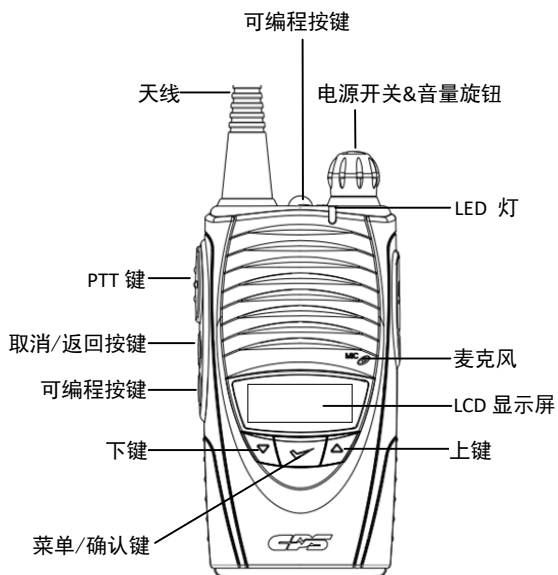### 电池安装和拆卸

要取出电池，请按下闩锁 A 并按箭头方向拉出电池；要安装电池，请将电池滑动至对讲机顶部直至与机身电池扣卡入到位。如箭头方向所示。

5. 对讲机操作


```
                          可编程按键

          天线                电源开关&音量旋钮

                                        LED 灯

      PTT 键

  取消/返回按键
                                        麦克风
  可编程按键
                                        LCD 显示屏
      下键                              上键


      菜单/确认键
```

1. 电源开关&音量旋钮

开机时：顺时针旋转开关旋钮，LCD 会显示"CPS"图标。关机时：逆时针旋转开关旋钮。调校音量：顺时针旋转时音量会增大，逆时针旋转时音量会减小。

2. PTT 键

按下 PTT 键进入发射模式，松开 PTT 键进入待机模式。建议距离麦克风 5-10 厘米说话以保证更好的通讯品质。

3. 菜单/确认键

按下菜单/确认键，进入菜单选择，可以通过下键或上键选择需要的菜单。

4.　可编程按键

可编程按键用于定义按键功能，需要由 CPS 编程软件进行设置。

5.　频道/菜单上下键

待机状态下，选择频道。在菜单模式下，按上/下选择相应的菜单。

6.　发射/接收 **LED** 状态显示

TX	红灯亮
RX	绿灯亮
绿灯闪	收到相同频率信号，但色码不匹配
低电量	红灯闪并发出"嘀嘀"声响

6. 电池充电

1. 安全注意事项

1）CP396 DMR 对讲机电源选用高性能的锂离子电池（CB33）。
   CB33 电池安全可靠，可以支持快速充电。
2）在使用对讲机之前，请先对电池进行充电，以获得最佳性能。
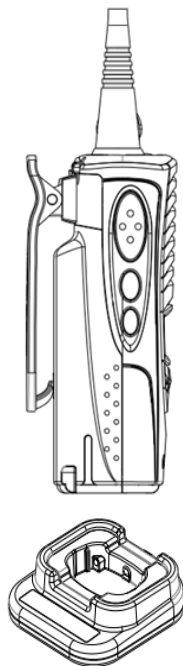3）电池带机充电时，请先关闭对讲机，再对机器内部电池进行充电。

2. 充电时间

低电量使用时可能会导致通话距离和性能变差，当出现下列情况，请对电池
及时充电：

1）当你认为对讲机性能变差。
2）在发射或接收时红色 LED 灯闪动。
3）LCD 电池图标闪动。
4）对讲机在使用时发出"嘀嘀"声响。

3. 充电方法

1）分别将电源适配器连接交流 220V 电源及 CS33 充电座。
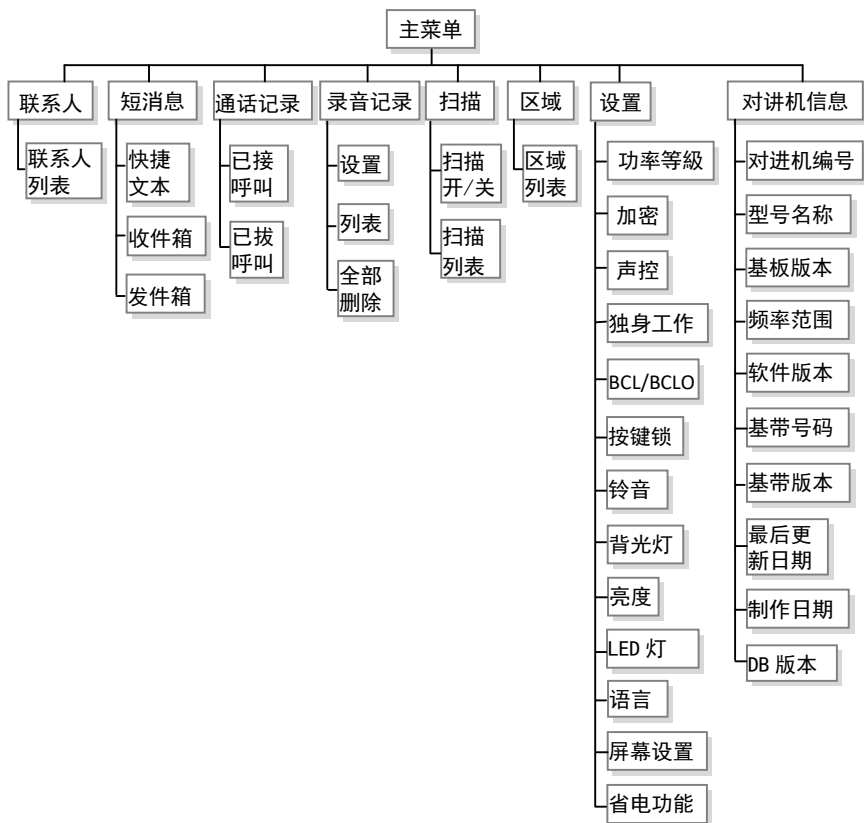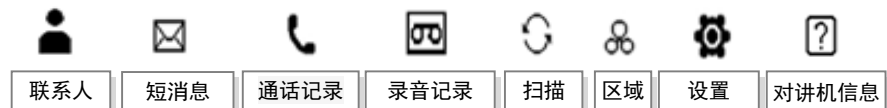2）当电池和对讲机一起充电时，请关闭对讲机。
3）即使充电完成（绿色指示灯亮），请再继续
   充电 30 分钟，以将电池完全充满。

LED 指示灯	状态
红灯	正在充电中
绿灯	充电完成
红灯闪动	充电短路/电池有问题/过充
绿灯闪动	高温
红灯及绿灯闪动	接触不良

7. 使用 CP396

按下【**菜单/确认键**】进入菜单模式。

进入菜单模式后有八个菜单可选择，可根据应用和需要设置，以方便使用。

联系人	短消息	通话记录	录音记录	扫描	区域	设置	对讲机信息

主菜单

联系人	短消息	通话记录	录音记录	扫描	区域	设置	对讲机信息
联系人列表	快捷文本	已接呼叫	设置	扫描开/关	区域列表	功率等级	对进机编号
	收件箱	已拨呼叫	列表	扫描列表		加密	型号名称
	发件箱		全部删除			声控	基板版本
						独身工作	频率范围
						BCL/BCLO	软件版本
						按键锁	基带号码
						铃音	基带版本
						背光灯	最后更新日期
						亮度	制作日期
						LED 灯	DB 版本
						语言	
						屏幕设置	
						省电功能	

1.　联系人菜单

设置联系人列表（写频预置），按 PTT 键来调用。如果要呼叫其中的一个联系人，在列表中选择并按下 PTT 键。在列表菜单中的联系人，可通过写频软件增加/删除联系人。进入联系人菜单时显示个人选呼、组呼或全呼联系人列表。

● 图标

　　👤 个人联系列表（个人选呼叫列表，发送个人信息）

　　👥 组联系列表（组呼，发送组信息）

　　👥 总列表（呼叫或发送信息到所有工作在相同频道上的对讲机）

2.　短消息菜单

当接收到新短消息时，在接收模式下 LCD 将会显示，如果在其它模式下收到新短消息将有未读消息显示。短消息菜单有快捷文本、收件箱、发件箱三个子菜单。

1）快捷文本

　　使用写频软件可以创建总共 10 条消息，并且一条消息最多可以编辑 40 个字符。如果选择快捷的消息菜单，则可以查看已注册的消息。选择您 要发送的信息，然后按【菜单/确认键】，您可以看到该信息的内容。当您再次按【菜单/确认键】时，该消息将发送到注册的终端。

2）收件箱

　　进入收件箱列表中，选择列表中的短消息，可以看到接收到的短消息内容。收件箱最多可以存储 10 条收件短消息，当接收到的短消息超过 10 条时，将会删除最早收到的短消息，以保存新的短消息。可以选择全部删除以清空收件箱。

3）发件箱

　　进入发件箱列表中，选择列表中的短消息，可以看到发送出去的短消息。发件箱最多可以存储 10 条发送短消息，当发送的短消息超过 10 条时，将会删除最早发送出去的短消息，以保存新的短消息。可以选择全部删除以清空发件箱。

3.　通话记录菜单

呼叫记录菜单只保存个人呼叫记录，组呼或全呼记录不保存。呼叫记录是保存在已接呼叫列表/已拨呼叫列表里。

1）已接呼叫

　　可以存储 10 条呼入的信息并看到对方的 ID。当已接呼叫列表超过 10 条信息时，将会删除最早的呼入信息，以保存新的呼入信息。可以选择全部删除以清空已接呼叫记录。

2）已发呼叫

　　可以存储 10 条呼出的信息并看到对方的 ID。当已拨呼叫列表超过 10 条信息时，将会删除最早的呼出信息，以保存新的呼出信息。可以选择全部删除以清空已拨呼叫记录。

4. 录音记录菜单

通话录音功能可以在录音菜单中设置开/关，录音功能可以保存发送和接收的通话内容。可以选择全部删除清空录音记录。录音功能可以记录 63 条录音，每条录音时长 2 分 30 秒。（该功能仅在数字模式）

5. 扫描菜单

打开扫描时，对讲机进入扫描模式并检查预置频道，扫描时指示 LED 红绿灯闪动。如果在扫描期间接收到信号，对讲机将暂时停止扫描。

1）扫描开/关

　　在扫描菜单中选择扫描的开和关。

2）扫描列表

　　可以通过写频软件预置扫描列表。

6. 区域菜单

可以通过写频软件设置。最多可支持 16 个区，每个区可支持 32 个频道。

7. 设置菜单

1）功率等级

　　发射高/低功率设置。

2）加密

　　在数字频道下开启该功能，接收和发送的语音将会进行加密。通过写频软件可以设置 0 到 65535 任意一个数字做为密钥。使用相同密钥并开启加密功能的机器才能正常语音通话。

3）声控（VOX）

　　通过写频软件设置声控灵敏度等级 1～5 级。开启声控功能后，　无需按 PTT 键即可通过语音触发机器发送。

4）独身工作模式

开启该功能后，机器在预设时间内若无发送操作，在快要到达预置时间前会发出提示音。如仍无发送操作，机器在提示音结束后将自动呼出紧急报警，独身工作时间可设置为 1～100 分钟。

5）繁忙信道锁定/解除（BCL/BCLO）

如果当前使用信道上有另一个用户正在使用，对讲机禁止发送，以免干扰。

6）键盘锁

键盘锁功能开启后，除 PTT、紧急键、电源开/关键和临时解锁键可以使用外，其余按键都不可以使用。

7）提示音

菜单只提供提示音的开/关设置，详细的提示音设置可通过写频软件设置。

8）背光灯

设置 LCD 背光灯的开/关。

9）亮度

调节 LCD 亮度等级为 1～7。

10）LED 灯

设置 LED 的开/关，可通过写频软件设置。

11）语言

设置显示中文或英文字体。

12）屏幕设置

有三种显示方式（待机）可选择设置。

13）省电模式

省电模式可设置关和省电等级 1:1、1:2、1:4。

8. 对讲机信息

显示此对讲机的信息。

注意：各按键功能可通过 CPS 编程软件进行定义。

1. Features

With the latest advanced technology, the CP396 DMR Professional Transceiver provides a compact and rugged design with easy-to-use features.

【Key Features】

- ➢ 32 Channels in 16 Zones are selectable. (1 Zone = 32 Channels max.)
- ➢ Frequency range : 400 – 470 MHz / 136 – 174 MHz
- ➢ 512 CH can be set.
- ➢ English and Chinese language setting function.
- ➢ RF Power setting function.
- ➢ Short (up to 40 characters) message sending and reception functions.
- ➢ Encryption mode 16 bit (encryption key Range 0~65535)
- ➢ VOX Voice Activated Transmission
- ➢ Lone Worker mode
- ➢ Normal scan
- ➢ 5-step VOX (Voice Operated Transmit) can be set
- ➢ BCL / BCLO function
- ➢ Time-Out Timer (TOT) function
- ➢ Emergency / Siren function
- ➢ Built in Flash Lamp
- ➢ Voice recording and playback
  (Recorder63 parts, 1 Recorder : 2minute 30second)
- ➢ Automatic analog/digital mode detection in receiver mode
- ➢ 5-step S.Q can be set (Analog support).
- ➢ Remote Radio Stun / Kill / Revive
- ➢ Speaker volume of 1 Watt
- ➢ 3Lines Mono LCD Display

【Accessories】

- ➢ CB33 7.4V 2600mAh high-capacity Li-ion battery.
- ➢ CS33 charging stand and CWC33 power adaptor.
- ➢ U ANTENNA / V ANTENNA
- ➢ User Manual

2. Specification

General

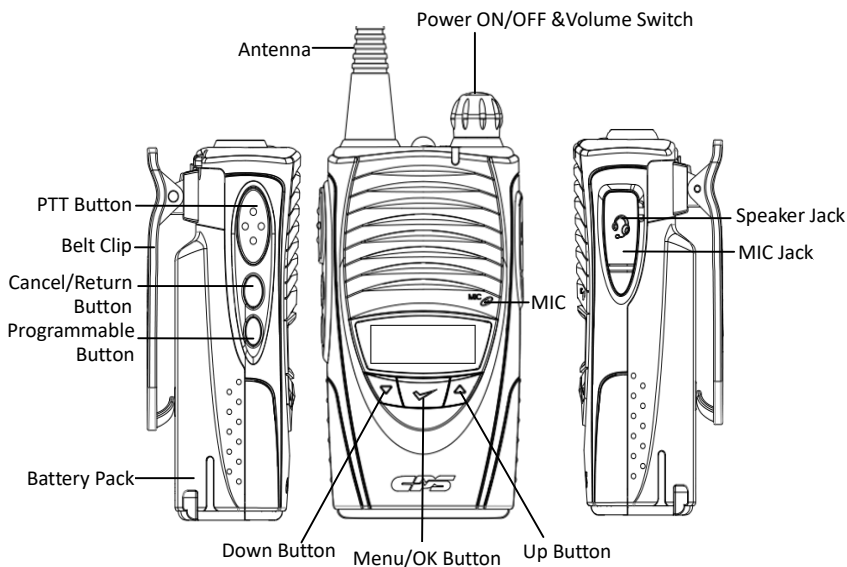|	
Frequency Range	CP396U: 400-470MHz CP396V: 136-174MHz
Frequency Stability	±1ppm(-30℃～+60℃)
Channels	16 Zones / 32 Channels
Channel Spacing	12.5KHz
Digital Vocoder	AMBE++
Dimensions	119mm(H) x 58mm(W) x 38mm(D)
Weight	245g
Power Source	7.4V 2600mAh
Current Drain	Receive mode, rated audio out – 420 (Audio Max)
(maximum)	Transmit mode –1,200mA Standby mode – 110mA

Receiver

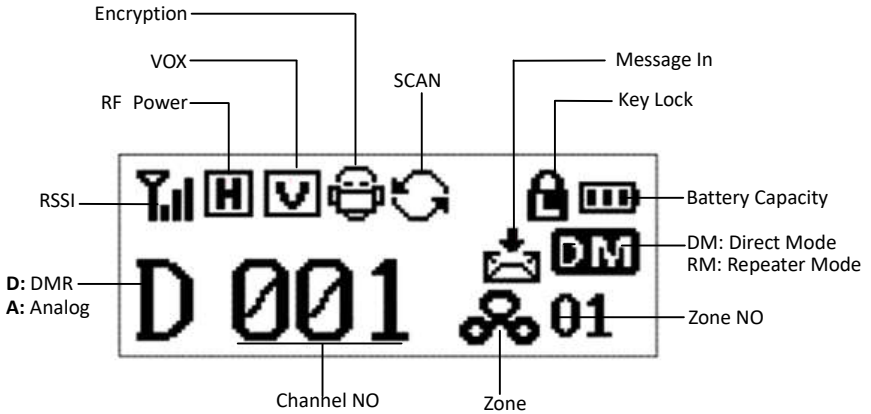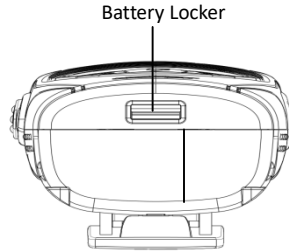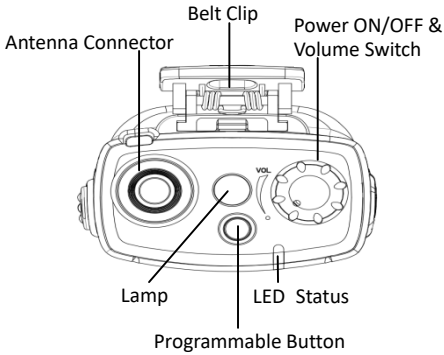|	
Sensitivity	0.25uV 12dB SINAD
Squelch Sensitivity	0.22uV 10dB SINAD
Selectivity	65dB(12.5KHz)
Spurious and Harmonic Rejection	75dB
FM Hum and Noise	40dB(12.5KHz)
Audio Output Power	1W/16 Ω
Audio Distortion	Less than 3% at rated output
Audio Response	+1, -3 dB from 6dB per octave de-emphasis Characteristic
Input Impedance	50 Ω

Transmitter

RF Power Output	CP396U/V:1-5W
Spurious and Harmonic	70 dB
FM Hum and Noise	40 dB
Audio Distortion	3% maximum with 1KHz modulation
Audio Frequency Response	+1, -3dB from 6dB per octave pre-emphasis Characteristic
Output Impedance	From 300 ~ 3000Hz 50 Ω

3. Appearance

Power ON/OFF &Volume Switch

Antenna

PTT Button

Belt Clip

Cancel/Return Button

Programmable Button

Battery Pack

Speaker Jack

MIC Jack

MIC

Down Button   Menu/OK Button   Up Button

Belt Clip

Antenna Connector

Power ON/OFF & Volume Switch

Battery Locker

VOL

Lamp

LED Status

Programmable Button

Encryption

VOX

RF Power

SCAN

Message In

Key Lock

RSSI

Battery Capacity

DM: Direct Mode
RM: Repeater Mode

D: DMR
A: Analog
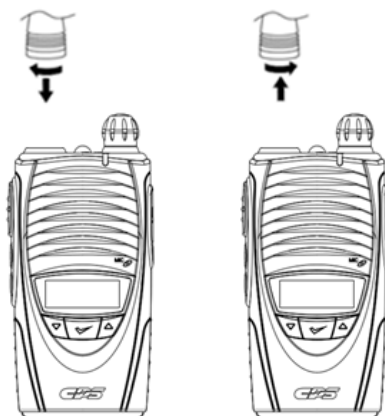
D 001

DM

01

Zone NO

Channel NO

Zone

4. Installation and Removal

Antenna Installation and Removal

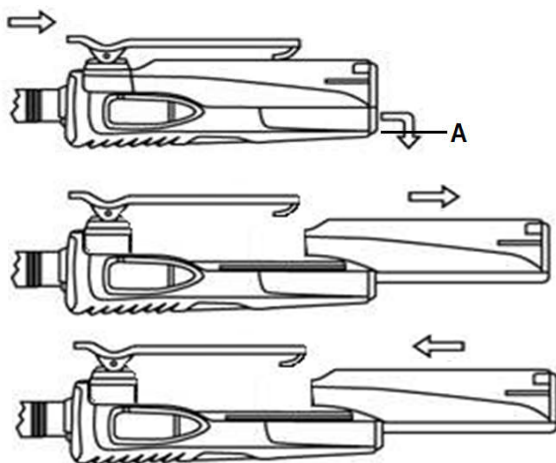To install the antenna, insert the antenna into antenna connector and screw the antenna clockwise. To remove the antenna, screw the antenna counter clockwise.
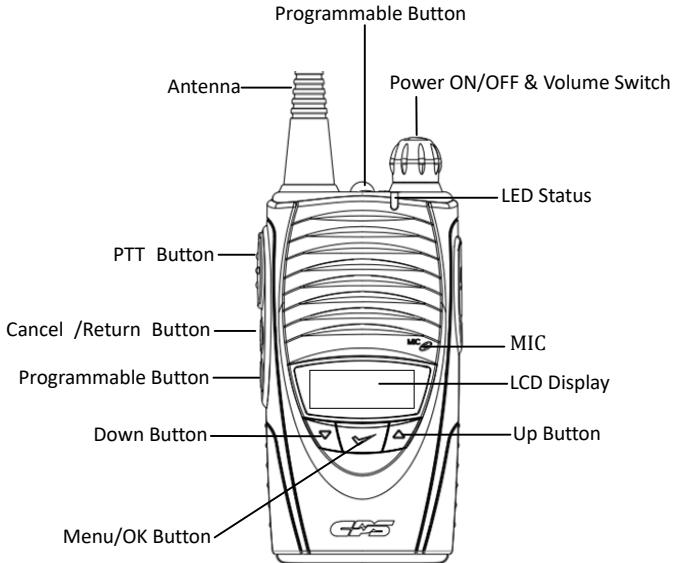
Battery Installation and Removal

To remove the battery, push the locker A and pull following the arrow direction;
To install the battery, slide up the battery towards the top of the radio and push down until battery latch is locked.

5. Radio operation

Programmable Button
Antenna
Power ON/OFF & Volume Switch
LED Status
PTT Button
Cancel /Return Button
MIC
Programmable Button
LCD Display
Down Button
Up Button
Menu/OK Button

1. Power ON/OFF &Volume Switch

Turning the volume switch knob clockwise to power ON and turning the knob counterclockwise to power OFF. There will be a sound with a 'CPS' logo on LCD when turning ON the radio. It volumes up when you turn it clockwise and volumes down when you turn it counter-clockwise.

2. PTT Button

Pressing PTT button, the radio mode is in transmission and by releasing the button, it will be in receiving mode. It is recommended to talk 5~10cm away from the microphone for the best voice communication

3. Menu/OK Button

When you press the Nenu / OK button, currently programmed menu is displayed and you can select a desired menu using by Down button or Up button.

4. Programmable Button (Program settings)

Programmable button are used to define button functions and need to be set by CPS programming software.

5. CH/Menu Up/Down Button

" CH / Menu Up" and "CH / Menu Down" are used to switch channels and in the menu entry mode, they will represent the Up / Down selection key to the Menu.

6. LED indication Status

TX	Red
RX	Green
Green blinks	When the frequency is the same but the color code does not match.
Low Battery	Red blinks with "beep" sound.

6. Charging the Battery

1. Safety Notes

1)   The radio of CP396 series receive power from high-performance Li-ion battery (CB33). CB33 Battery is safe of high performance, highly reliable, and could be charged in fast speed.

2）Please charge the battery before using the radio for best performance and safety.

3）When you charge the battery that is installed in the Radio, please turn off the radio first, then to charge the battery.
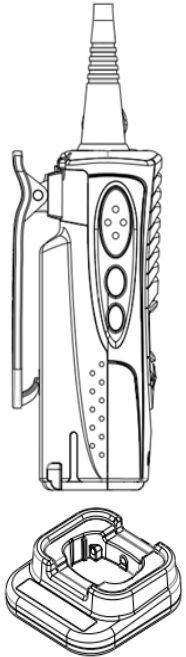
2 . Charging time

Low battery voltage may lead to reduction in communication coverage and affect radio performance. Please charge the battery in case of following:

1）When you think that the performance of the radio has degradation.

2）The red LED blinks during transmission or reception.

3）When the battery icon is blinking

4）While the radio is in use, "beep" sounds.

3   How to charge

1）Plug the adapter of the CS33 charger in general power AC220V power outlet.

2）When charging the battery that is equipped with radio, please turn off the power of the Radio and plug the Radio in the charger.

3）Even if charging is completed (Green lights), Please charge more for about 30 minutes for a full charge.

LED indication	Status
Red light	Charging
Green light	Charging completed
Red blinking	Short circuit/battery problem/over charge
Green blinking	Over temperature
Red & Green blinking	Loose contact

7. Using the CP396

Press the【Menu/OK Button】button on the front to enter into the menu mode.
In the menu mode, there are eight main menus for operation according to
the application and situation required.

Contacts	Messages	Call Logs	Voice Record	Scan	Zone	Setting	Radio Info

Main Menu

Contacts	Messages	Call Logs	Voice Record	Scan	Zone	Setting	Radio Info
Contact List	Quick Text	Incoming	Settings	Scan On/Off	Zone List	Power Level	Radio ID
	Inbox	Outgoing	List	Scan List		Encryption	Model Name
	Outbox		Delete All			VOX	PCB Version
						Lone Worker	Freq Range
						BCL/BCLO	SW Version
						KeyPad Lock	BB Number
						Tones	BB Version
						Backlight	Last Update
						Brightness	Made Date
						LED Control	DB Version
						Language	
						Screen	
						Power Save	

1 . Contacts

Set a contact list (set to CPS program) and will be pressing the PTT button to call. If you want to call with another registered contact, after you select a contact from the contact list and press the PTT button, it will be the call. Thelist of contacts in the menus can be registered / deleted using the CPS program. (Customer Programing Software)

When you enter into the contact menu, the individual, group and All Call contact list will be displayed.

- ICON
    - 👤 Individual Contact List (individual Call , Sending individual message)
    - 👥 Group Contact List (Group Call , Sending group message)
    - 👨‍👩‍👧 All Contact List (All call, Sending Message to terminal which has same channel and same color)

2. Message

When a new message arrives, the contents will be displayed on the LCD in receive mode and if you are in other mode, it will be seen in the ICON form when a new message arrives. Message menu has a simple message, inbox, outbox, three kinds of menu.

1）Simple Message

Using the CPS program can create a total of 10 messages and One message can be edit up to 40 characters. If you select a simple message menu you can view the registered message. Select the message you want to send, and press the Menu/OK button, you can see the contents of the message. When you press the Menu/OK button again, the message will be sent to the registered terminal.

2）Inbox

It is possible to store up to 10 incoming messages. When you choose contents stored in the list, you can see the received messages.
When the received message is more than 10, the earliest incoming message is cleared first and it is registered.
If you want to delete incoming messages, it can be deleted by selecting delete all menu.

3）Outbox

It is possible to store up to 10 outgoing messages. When you choose contents stored in the list, you can see the outgoing messages.
When the outgoing message is more than 10, the earliest outgoing message is cleared first and it is registered.
If you want to delete outgoing messages, it can be deleted by selecting delete all menu

3. Call Logs

This is the menu to save only the individual call log. Group and All call logs will not be saved. The message content is managed in the in/outbox messages.

1）Inbox

It is possible to store up to 10 inbox record and the opponent ID can be seen. When the inbox is more than 10, the earliest inbox record is cleared first and it is registered. If you want to delete inbox record, it can be deleted by selecting the delete all menu.

2）Outbox

It is possible to store up to 10 outbox record and it can see the opponent ID. When outbox is more than 10, the earliest outbox record is cleared first and it is registered. If you want to delete outbox record it can be deleted by selecting delete all menu.

4. Voice Record

This function is used to save the outgoing and incoming calls content. If the recorded content is not required, it can be completely deleted. Calls list can store up to 63 recordings and each recording will be limited to 2 minutes and 30 seconds.

You can enable/ disable the recording function in Settings.

5. Scan

When turning ON the scan function, the radio will be in scanning mode and verify the channel that has been set in the scan list. If there is a transmission occurs during the scan, the scan will be temporarily suspended. You can use the settings to suit your needs by the CPS programming software.

1）Scan ON/OFF

Select the scan settings or scan release at the scan of menu and go to receive mode.

2）Scan list

Scan list can be set using the CPS programming software

6 . ZONE

ZONE can be created up to 16 zones and it can be registered up to 32 channels per ZONE. ZONE can be set by using the CPS programming software .

7 . Setting

This is the menu to set various functions of the radio. The settings are transmission power, voice encryption, VOX, Lone walker, BCL / BLCO, Keypad lock, Sounds, Backlight, Contrast, LED settings, and Language.

1） Transmission power

Set the high and low of the transmission power.

2） Voice Encryption

This is a feature to encrypt the incoming and outgoing voice. Voice Encryption function can be set for each channel from all of the digital channels. The setting of voice encryption code can be enabled by using the CPS programming software. The total combination of encryption code can be set from 0 to 65535.

3）VOX

VOX function is transmitted by detecting a voice level without Using the PTT button. VOX sensitivity level is 1 - 5, you can select the level by using the CPS programming software.

4） Lone Worker

This function is to inform others about your safety within the time set in the menu. Setting time supports up to 1-100 minutes.

5）BCL/BCLO

Transmission will be disabled if another user transmits at the same time on the same channel so as not to create interferences. BCL: If the current channel is busy, the transmission will be prohibited. BCLO: The ability to send regardless of the user of the current channel.

6）Button Lock

With the exception of the minimum of buttons necessary for the user to prevent unwanted terminal operation, it is the ability to limit the operation. When the button lock is on, all buttons are locked except the PTT button, the emergency button and power ON / OFF button.

7）Sound

This is a sound setting function. The main menu is available Only ON / OFF. The detailed sound can be set using the CPS program.

8）LCD Back Light

This feature is LCD backlight ON / OFF.

9）LCD Contrast

The function is to adjust the brightness. The brightness can be set from 1 to 7. LED Status display setting.

The feature is to set the LED status display.

It can be set detailed by using the CPS programming software.

10）LED Control

This function is to set to enable or disable the radio LED.

The LED can be set by using the CPS programming software.

11）Language

The feature is to select the language for the menus.

12）Screen Setting

This function can be set to 3 kinds of screen display.

13）Power Saving Mode

This function allows the radio to enter a power saving mode to extend battery usage time. Off is full power, 1/1 is 50% on/50% off; 1/2 is 33% on/67% off; 1/4 is 25% on/75% off. Note: When sending and receiving text messages, turn off the power saving mode.

8 . Radio Information

A menu that shows the information in this device.

Note: The function of each button can be defined by CPS programming software.

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