



## **Product Summary, CA12CD & CA12CD/A Cordless Push-to-Talk Adaptors**

## 1 Document Information

This document summarizes features of the CA12CD and CA12CD/A cordless push-to-talk headset adaptors. It is intended for customers of Plantronics who need general information about this product. This document is based on the CA12CD product specification, Plantronics drawing number 72297.

### 1.1 Publication History

Revision	Date	Description
1	27 Mar 06	First release
2	22 Jun 06	Revise
3	20 Jul 06	Charge LEDs were amber
4	9 Aug 06	Add labels to Figure 1
A	2 Oct 06	Production release
B	14 Mar 07	Add CA12CD/A

### 1.2 Document Approval

Author:	<u>Blake Cooper</u>	<u>27 Mar 06</u>
	Editor	Date
Prepared By:	<u>Blake Cooper</u>	<u>27 Mar 06</u>
	Engineering	Date
Approved By:	<u>Mike Erbe</u>	<u>27 Mar 06</u>
	Product Management	Date

**1.3**

**Table of Contents**

<b>Titles</b>	<b>Page No.</b>
<b><u>1</u>     <u>Document Information</u></b>	<b><u>2</u></b>
1.1    Publication History .....	2
1.2    Document Approval.....	2
1.3    Table of Contents .....	3
1.4    List of Illustrations .....	3
<b><u>2</u>     <u>Product Description</u></b>	<b><u>4</u></b>
2.1    Summary of Features.....	4
2.2    Functional Description .....	5
2.3    User-Product Interface .....	7
2.3.1    Controls .....	7
2.3.2    LEDs.....	8
2.3.3    Audible Indicators .....	8
2.4    Product Architecture .....	9
2.4.1    Base Unit.....	9
2.4.2    Remote Push-to-Talk Unit .....	10
2.5    Security .....	10

**1.4**

**List of Illustrations**

<b>Titles</b>	<b>Page No.</b>
<b>Figures:</b>	
Figure 1: Model CA12CD.....	5
Figure 2: Base Block Diagram.....	9
Figure 3: Remote Unit Block Diagram .....	10
<b>Tables:</b>	
Table 1: User-Interface Controls .....	7
Table 2: User-Interface LEDs .....	8

## 2 Product Description

### 2.1 Summary of Features

- Push-to-talk (PTT) switch that is robust and field-proven
- Spare battery pack
- Two charging wells – one for the remote unit, one for the spare battery pack
- Lithium-ion batteries
- Eight hours talk time, minimum
- Ultra-type quick-disconnect for compatibility with all “H” tops
- Receiving coarse- and fine-adjust sensitivity controls
- Selectable sending-sensitivity ranges to emulate carbon, electret, and dynamic mics
- Sending-sensitivity fine-adjust control
- DECT (Digital Enhanced Cordless Telecommunications) radio operating in the UPCS band (CA12CD) for North-American applications and full DECT version (CA12CD/A) for areas such as the European Union and Australia.
- Compatible with most air-traffic-control and public-safety-dispatch voice switches
- Ten-foot coiled interface cable with PJ-7 connector (other connectors available upon request)
- LEDs for RF link, PTT, base power, and battery-charging status
- Audible indicators for such conditions as out-of-range, low battery, and sending- and receiving-sensitivity changes
- Security in compliance with USA regulation  
45 CFR 164.312(a)(2)(iv)



**Figure 1: Model CA12CD**

## 2.2 Functional Description

(Note: Unless otherwise specified, all references to the CA12CD apply to the CA12CD/A as well.)

The CA12CD is a cordless push-to-talk (PTT) headset adaptor made to provide wireless communications and PTT functionality for Public Safety Dispatch and Air Traffic Control facilities (see Figure 1). The CA12CD has an Ultra-type quick-disconnect and is compatible with all Plantronics “H” tops.<sup>1</sup> The CA12CD consists of a base unit and a remote unit.

The base has two charging wells, sending- and receiving-sensitivity controls, status LEDs and a 10-foot coil cord with a PJ-7 connector. The charging wells accommodate the remote and a spare battery pack. The LEDs show battery-charge status, power, and PTT status. The sending controls consist of a configuration switch to emulate the outputs of different microphone types and a sending-sensitivity

<sup>1</sup> Examples of H-tops commonly used in air-traffic control and public-safety dispatch are the H31 (StarSet III), H51 (Supra), H251 (SupraPlus), and H91 (Encore), along with the various binaural and noise-canceling variants of these tops.

fine-adjust control. The receiving-sensitivity control selects among four different sensitivity ranges, and the receiving sensitivity can be fine-tuned by a control on the remote. The console interface cable connects to the base via a 6-pin modular connector and is typically wired on the console end with sending on the PJ-7 tips, receiving on the sleeves, and PTT on the rings. When the user presses the PTT switch on the remote unit, a relay is closed in the base that places a short circuit across the PJ-7 rings. This short circuit “keys up” the communications console to which the CA12CD is connected and allows the user to transmit over the communications radio.

The remote unit has a PTT switch, an On-Off switch with incorporated LED, a metal belt clip, a receiving-sensitivity fine-adjust control, and a twelve-inch cable terminated in an Ultra quick-disconnect to which any Plantronics “H” top can be connected.

The CA12CD/A operates in the standard DECT band of 1880 to 1900 MHz. DECT is a Time Division Duplex (TDD) system providing twenty-four time slots (twelve transmitting and twelve receiving) per 10-ms frame. Ten frequencies are allocated, providing a total of 60 duplex channels.

The CA12CD also uses DECT technology, but it operates in the Unlicensed Personal Communications Services (UPCS) 1920- to 1930-MHz band for use in North America. To operate in the UPCS band, the CA12CD uses a version of DECT that operates a “blind slot” system with six transmit and six receive slots providing a total of 30 duplex channels.

The DECT protocol is used for its power efficiency, which allows extended operation from a relatively small battery pack.

In addition to the audio channels, DECT has a 2-kB/s bidirectional data channel that allows the remote unit to send PTT switch signals to the base unit.

## 2.3 User-Product Interface

The user-product interface consists of its controls, LEDs, and audible indicators, which are described below.

### 2.3.1 Controls

Table 1 lists and describes the CA12CD's controls.

Name	Location	Type	Function
Push-to-Talk	Remote	Leaf switch	Causes relay closure in base that "keys up" user equipment for RF transmission
Locking-Momentary Selector	Remote	Mechanical	Enables or disables locking operation of the PTT switch
On-Off	Remote	Pushbutton with integrated green LED	Toggles the RF link between the idle-locked and enabled states
Receiving-Sensitivity Fine-Adjust	Remote	Rocker switch	Adjusts the receiving sensitivity in 2-dB steps
Receiving-Sensitivity Coarse-Adjust	Base (bottom)	Four-position slide switch	Adjusts the receiving sensitivity in 6-dB steps
Sending-Sensitivity Fine-Adjust (one Up and one Down)	Base (top)	Momentary pushbuttons	Adjusts sending sensitivity in 2-dB steps
Sending-Sensitivity Coarse-Adjust (Transmit Mode)	Base (bottom)	Four-position slide switch	Adjusts the sending sensitivity to emulate carbon, electret, or dynamic mic output levels

**Table 1: User-Interface Controls**

### 2.3.2 LEDs

As shown in Table 2, Model CA12CD has one LED in the remote and four LEDs in the base.

Name	Location	Qty	Color	Aspect
On-Off	Remote, integrated into the On-Off switch	1	Green	1) Slow flash to indicate that the RF link between the remote and the base is enabled. 2) Rapid flash to indicate lost subscription between remote and base.
Power	Base	1	Green	On continuously when the base is connected to power via the ac adaptor.
Talk	Base	1	Green	On continuously when PTT button is depressed, otherwise off.
Charge	Base	2	Orange	1) Flashing while battery is charging 2) On continuously when battery is fully charged or during top-off charging. 3) Rapid flashing to warn of fault condition (remote's charging well only).

**Table 2: User-Interface LEDs**

### 2.3.3 Audible Indicators

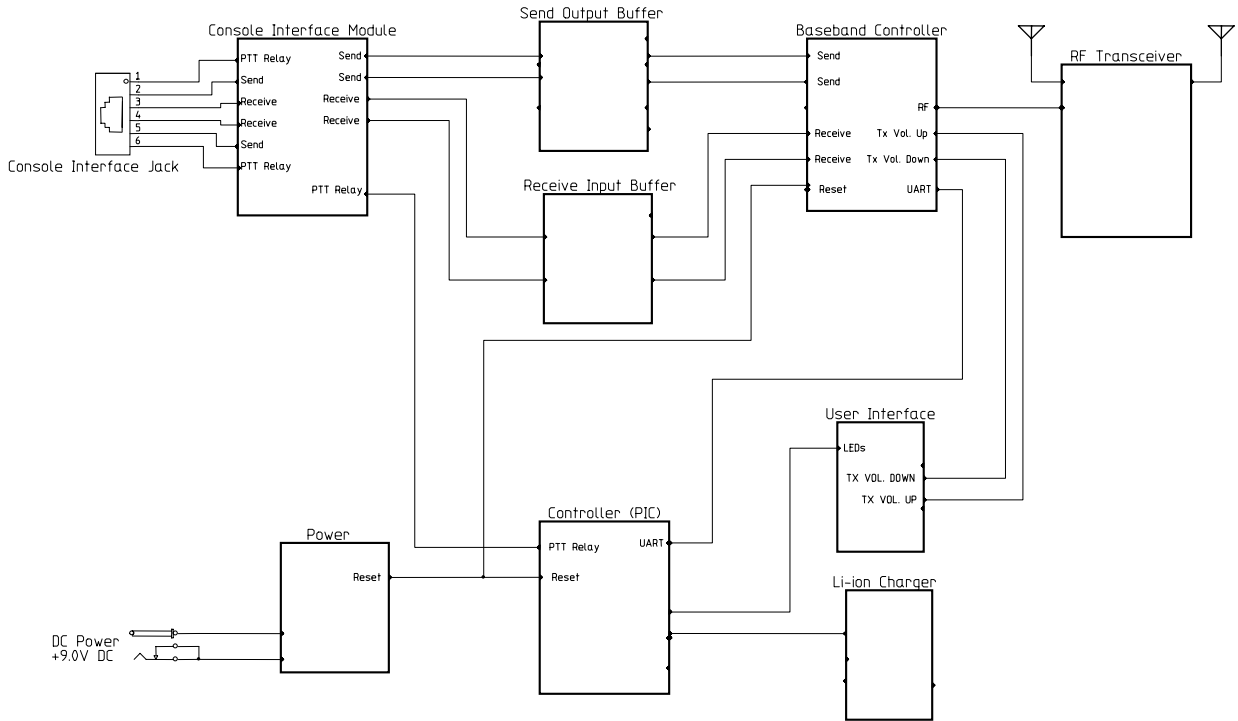
The CA12CD employs several audible indicators (a.k.a. "earcons"), which provide user feedback for switch actuations and indicate such conditions as out-of-range and low battery. These indicators are fully described in the product specification. More information is available on request.



## 2.4 Product Architecture

### 2.4.1 Base Unit

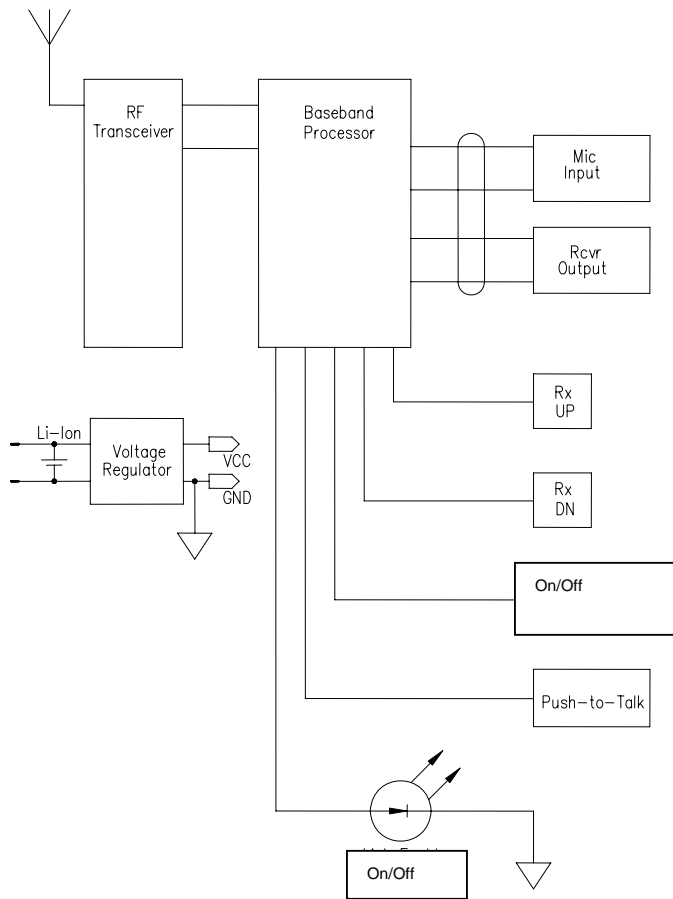
A block diagram of Model CA12CD base is shown in Figure 2.



**Figure 2: Base Block Diagram**

## 2.4.2 Remote Push-to-Talk Unit

The block diagram of the remote unit is shown in Figure 3.



**Figure 3: Remote Unit Block Diagram**

## 2.5 Security

Model CA12CD uses standard DECT sixty-four-bit encryption, which is enabled each time the RF link is enabled. Encryption keys are negotiated once per “location registration,” which is to say, each time the remote comes within range of the base. See ETSI EN300 175-7 *DECT Common Interface; Part 7; Security Features*.

Model CA12CD is compliant with USA regulation 45 CFR 164.312(a)(2)(iv). Compliance with this regulation makes Model CA12CD also compliant with the Health Insurance Portability and Accountability Act (HIPAA) and Sarbanes-Oxley (2002) Sec. 404.