

Smarttouch Telephone Automation System

The Smarttouch allows a broadcaster to do a remote via phone line without the need for someone to run the board at the station. The announcer simply calls the dedicated phone line and types in the security code for the Smarttouch. The announcer can then control the Smartcaster via the DTMF (Dual Tone, Multi Frequency) tones on a standard touch-tone phone.

Additionally, the users can build a remote template for recording a script number from the incoming phone connection. Each recording template can support up to 7 audio cuts. These are most commonly the Weather Forecasts running on the station, as well as stock reports, and special sports reports.

The operational phase of Smarttouch consists of three parts:

Dialing the station.

Entering the security code.

Entering the number of the remote that you wish to run.

We highly recommend a dedicated, unpublished number for your remotes, although it is possible to hook Smarttouch to any phone line. However, if you use a standard business line, and someone else calls the number ahead of you, you may dial into a busy signal and not be able to access the Smartcaster. The Smarttouch answers the phone on the first ring, and that behavior is not adjustable.

When you dial the Smarttouch number, you will hear a beep on the line. This beep indicates that you are connected to the Smarttouch, but are not yet in control of the Smartcaster. When you hear the beep, you must enter the correct security code within 30 seconds. Entry of the wrong digit in a code will cause a beep. There is no response if the digit is correct. If the code is not entered within 30 seconds, Smarttouch hangs up. If the code is entered correctly within that time frame, you will hear air cue fed back down the line. This tells you that you are now connected to the Smartcaster. The default security code is "8888".

At this point, the Smarttouch waits for the next 3 digits, and will interpret these three digits as the remote number.

For example, if you punch 001 on the touch-tone phone, the unit will access remote number one, while a 123 on a touch-tone phone will access remote number 123. If you make a mistake, continue to enter until three digits are in place, wait a few seconds, then enter the “#” key, after that try the correct template number. You must keep track of your keystrokes here, since you cannot see the Smartcaster screen. Enter the three digits carefully and you will be ready to broadcast, or record. I recommend practicing a few times in the studio to watch the DTMF display on the Smarttouch unit.

The single largest difficulty for new Smarttouch users is remembering not to punch the numbers in too fast.

Use the “#” key to clear the Smarttouch much the same as you would clear a calculator. This will set the network back to air and send the Smartcaster to the “Satellite on Air” screen. From here you can re-enter your remote number and start over.

PHYSICAL WIREING

There are few connections required for the Smarttouch.

You will need the audio from an “ON AIR” monitor source. This audio will be fed to the caller at different points in the broadcast. Some engineers simply take the “Program Audio” from the RIDZ, but the danger with doing this is that then you can not be completely positive that the station IS on the air.

Because I used to use a Smarttouch to “Check” on the station when out of the market, I liked it to have the true “Air” signal.

You will need a feed from the AUDITION output of the Smartcaster that the Smarttouch is being connected to. This audio output is where the greeting audition cut is played from, and where the record audition output is played from in a record template.

There is an AUDIO output for the system that goes to the RIDZ switcher. Traditionally the Smarttouch is wired to input #7, if you do not use input 7, record the input you use, as we’ll need to change that info in the Setup screen.

Last is of course the phone line. This is to be an analog phone line. Be aware that if you use an analog port from your internal phone system, most PBX systems do not create a proper “End of Call” voltage signal, and the Smarttouch may not properly release the phone line at disconnect. If that is the case, you need a “Call Progress” device from someone like Circuitwerkes. The CP2 is very useful for interfacing to PBX systems; the cost is about \$100.00.

http://www.broadcastboxes.com/products/CP-2_lit.html

The Smart-touch provides you with considerable control of your SMARTCASTER, and your air sound from any touchtone phone, anywhere in the world. Even the most complex remotes are possible without the need of having someone “ride the board” back at the studio. Over 100 different remote “templates” can be pre-programmed at the studio prior to the actual event. These templates can then be called on to the air by touch-tone command.

A template consists of three different sections that together make up a smooth way to transition into and out of a remote broadcast. The sections are as follows:

Section 1 – INTRO. This section, which is actuated from the field by a DTMF 1 will play a pre-recorded intro, then put the remote telephone on the air.

Section 2 – SPOTS. This section, actuated by a DTMF 2 will play a rotation of spots within the remote, starting over on the list when the last spot plays.

Section 3 – CLOSE. This section, actuated by a DTMF 4, will play the close, and then rejoin the satellite network.

Setting up the template, therefore consists of the following:

1. Assigning a number (001-999) to the remote. This number will be keyed in from the touch-tone phone to “cue up” the proper template for that remote. If your station has a limited number of remotes at any given time, we suggest using identical numbers (i.e. 222, or 333) for your remote number. Having the same number makes it a little easier to recover from losing your place.
2. Recording an intro, and informing the SMARTTOUCH of the file number for the intro.
3. Recording the spots (if they are not already present in the SMARTCASTER), and listing the spots in the spot list section of the SMARTTOUCH software.
4. Recording the close, and listing it in the close section of the software.

To access the SMARTTOUCH procedure, pick REMOTES under the programming window from the main menu.

The first screen that appears is a list of all the remote templates that have been created. The list includes the number of the remote, the name of the remote, the file to be played for an intro, the file to be played for a close, the date, and the time of the remote, and rotational position of the next spot to be played.

At this point, you may browse through the list of remotes, using the cursor control keys and the page up and page down keys on the computer keyboard.

A menu selection appears at the bottom of this screen. The options are as follows:

F1 Pulls up a help screen to explain how to use this section of the SMARTTOUCH system.

F2 Allows a remote to be added to the list of remotes, or allows for editing of data within the remote, including the spot rotation.

When you pick F2, a window will appear in the center of the screen asking for a remote number. Any 3-digit number from 001 through 999 is acceptable. If the number entered is a number of an existing remote, the user will be allowed to edit the remote. If however, the number is a new remote, the user will have a blank screen to enter new data. The System will ask if this is a PLAY event or a RECORD event. For now, play events-recording events are later in this document.

The information needed for the remote is entered in each field in sequence. Once the data is entered in the first field, depressing the down arrow key will advance to the next field. Depressing the up arrow key will move back to the previous field to allow data to be changed.

The header information for the remote includes the following in this order:

Name of remote
Date
Time
Number of the intro audio file
Number of the close audio file
Starting point for the spot rotation

Once this data has been entered, the cursor jumps to the spot rotation window. This is where the actual location of the spots is entered. Type in the 5 digit spot code, and the account name will appear. If the spot you are entering is not yet produced, you get an advisory saying that the spot is not recorded, in place of the name. If that spot is not produced by the time the remote is aired, the spot will simply be skipped. If the entire list of spots is not produced, a fill file will be played when the remote site calls for spots.

To edit a field use the arrow keys to highlight the field, and then use the backspace to delete the current data.

The full rotation of spots must be placed in this list. If one account is receiving more spots than another, that must be reflected in the list. The SMARTTOUCH will simply play the next one down.

The spots are listed in two columns to maximize the number displayed on a single screen. As more are added, the first spots scroll off the top of the screen. The cursor can be moved to any position, anywhere in the list, using the up and down arrows, or the page up

and page down keys. Pressing INSERT will move the highlighted spots down, allowing another spot to be inserted in that position. Likewise, pressing DELETE will delete the highlighted spot.

When the entire spot rotation list is entered, pressing ESC will save any changes you have made and return you to the previous menu.

F3 Deletes a remote from the remote list.

F4 Allows for the computer operator to access manually the remote rotation of spots, to make it easier to play spots within ball games or other programs that require a sponsorship rotation. This means that you actually can use this section of the programming as a modified live assist module, without the need of automating the remote. Once in this mode, the function keys correspond to the keys on a touch-tone pad. F1 performs the same function as touch-tone 1, etc.

Once that process is finished, operation of the SMARTCASTER from the remote site can be accomplished with simple touch-tone commands. There are 8 different commands currently supported, with room for future command expansion. In addition, the timing of the commands is significant. The SMART-TOUCH has a “hookup” phase that connects the remote phone to the SMARTCASTER, and loads the correct template, and an “on-air” phase when the actual broadcast occurs. Touch-tone commands function differently in the two phases.

To exit from this menu, simply press ESC.

THE HOOKUP PHASE

The hookup phase consists of three parts – dialing the station, entering the security code, and entering the number of the remote that you wish to run.

We highly recommend a dedicated, unpublished number for your remotes, although it is possible to hook SMART-TOUCH to any phone line. However, if you use a standard business line, and someone else calls the number ahead of you, you may dial into a busy signal and not be able to access the SMARTCASTER.

When you dial the SMART-TOUCH number, you will hear a beep on the line. This beep indicates that you are connected to the SMART-TOUCH, but are not yet to the SMARTCASTER. When you hear the beep, you must enter the correct security code within 30 seconds. Entry of the wrong digit in a code will cause a beep. There is no response if the digit is correct. If the code is not entered within 30 seconds SMART-TOUCH hangs up. If the code is entered correctly within that time frame, you will hear air cue fed back down the line. This tells you that you are now connected to the SMARTCASTER.

At this point the SMART-TOUCH waits for the next 3 digits, AND WILL INTERPRET THESE THREE DIGITS AS THE REMOTE NUMBER.

For example, if you punch 001 on the touch-tone phone, the unit will access remote number 1, while a 123 on the touch-tone phone will access remote number 123. If you make a mistake, continue to enter until all three numbers are in place, wait a few seconds, and then enter the correct number. You must keep track of your keystrokes here, since you cannot see the SMARTCASTER screen. Enter the three digits carefully and you will be ready to broadcast.

IF ALL ELSE FAILS...use the “#” key to clear the SMART-TOUCH much the same as you would clear a calculator. This will set the network back to air and send the SMARTCASTER to the “Satellite on Air” screen. From here you can re-enter your remote number and start over.

You have now completed the hookup stage of the process. The following instructions are for use in the on the air mode.

ON AIR

Once you have entered the number of the remote, the unit is automatically in the on air mode. Touch-tone keys are now reassigned, and have specific functions. Here is a list of the functions:

TOUCH-TONE KEY	FUNCTION
1	Play Intro – Then put phone on air
2	Start playing spot list
3	Stop playing spot list at end of this spot
4	Play close – rejoin the satellite network
5	Cold-No intro-Put phone on air
6	Cold-No close-Put satellite back on air
7	Cut in – Cut all audio and switch phone to air
8	Feed program cue to line
9	Feed network cue to line
0	Unassigned
***	Hang up
#	Clear – Cut all audio, switch sat to air and return the caller to the “Sat on air” screen.

Therefore, if you hit key number 1, you will dump out of the network, and the unit will begin playing the intro assigned to the remote. At the end of the intro, the phone line will be on the air.

During playback of audio, air cue is returned down the phone line. Cue is automatically muted when the phone line is switched back on the air. If key 9 is depressed, network audio is fed to the line in place of air cue. If key 8 is depressed, air cue again replaces network audio on the line.

If you depress key 2, spots begin to play in the rotation you have previously established. The spots will play continuously, following the list from top to bottom, and then rotating back to the top.

When you depress key 3, the spot currently playing stops at the end of the spot, and the phone line is returned to the air. NOTE: The rotational position of the next spot is save in the SMART-TOUCH software, so that the spots will pick up from that position, even in subsequent uses of that remote number. This means you can assign one remote number to an entire sports season, such as football, and simply call up that remote number each week as you broadcast the game. The spots will pick up from where you left off last week. This accommodates the practice of most stations of selling the season as a package, with the same sponsors’ rotations each week. Of course, sponsors may be added or deleted at any time from that remote.

When you depress key 4, the recording of the program close is played, and the unit will return to the satellite, taking the remote off the air.

In the event of unanticipated delays, such as rain delays in sporting events, it is possible to return to the satellite by depressing key 6. This will result in an instantaneous return, with no close played. Control of the SMARTCASTER returns to the normal programming sequence and will remain that way until you reinitiate the remote. Should you re-enter the remote number and depress key 5, you will instantly be back on the air. No intro file will play.

This feature allows smooth transitions from satellite to remote and back to satellite. In order to avoid rejoining the satellite network during a national spot or local break, the announcer at the remote site can listen to the satellite audio by depressing key 9, then triggering a spot or two from the rotation. Pressing key 8 restores air cue to the line.

If the delay is extended, and it is necessary to hang up the phone line to save long distance charges, the normal hang up procedure may be followed. When you wish to go back on the air it will be necessary to follow the entire hook up procedures outlined above. However, use key 5 to go back on the air to avoid playing the intro file a second time.

HANG UP PROCEDURES

The hang up procedure should only be done after the SMARTCASTER has been returned to a satellite mode, and normal programming has resumed. To hang up, strike the star key (*) 3 times. This will hang up the SMART-TOUCH. Now the telephone at the remote site may be placed back on hook.

UNINTENTIONAL DISCONNECTS

The SMART-TOUCH has been designed to accommodate the unintentional disconnect as smoothly as possible. However, the announcer at the remote site should use all diligence to avoid the disconnect, which will certainly strand the SMARTCASTER in some undesirable mode until the call can be re-established. The SMARTCASTER will simply continue doing what it was last instructed. The unit is designed to detect the battery reversal of fast busy signal that usually results when one end of a call hangs up, and the other stays off hook. It can take some time for this detection to take place, and some phone systems use different signals than others. The most practical answer to this problem is to route cables at the remote site in such a way that there is no possibility that someone might trip and pull the phone connector out of the wall. (Also note the Call Progress decoder info in the appendix.)

When the SMART-TOUCH does disconnect, you may simply call it back, go through the hook up process, and resume the broadcast exactly where the caller left off. BE CAREFUL not to re-enter the remote number if you are already in the remote program. Doing so may trigger intros, spots, etc. when you do not want them.

If accidental disconnects are a frequent problem on your phone service, consideration should be given to a backup manner of hanging up the phone at the station.

If multiple remotes are planned at close intervals, it is important that each announcer be instructed to hit the star key 3 times before the phone at the remote site is hung up. Failure to do this will result in the phone line remaining off hook at the station, and the same problem as an accidental disconnect would exist. Striking *** will instantly hang up the phone at the station, and clear the line for the next remote.

SMART TOUCH

The SMART-TOUCH allows a broadcaster to do a remote via phone line without the need for someone to run the board at the station. The announcer simply calls the dedicated phone line, and types in the security code for the SMART-TOUCH. The announcer can then control the SMARTCASTER via the DTMF, (DUAL Tone – Multi Frequency), tones on a standard touch-tone phone.

Installation

Audio wiring for the SMART-TOUCH is very simple. First, the balanced satellite network audio must be wired into the appropriate stereo jacks on the back panel of the rack-mount cabinet. Next, a balanced, monaural air monitor should be wired into the appropriate input jack. Finally, the balanced system output should be wired into the RIDZ switcher.

Next, a standard phone line must be connected to either of the phone jacks on the back panel of the SMART-TOUCH. If desired, a phone can be hooked into the second jack. In this manner, the line could be used as a “dial-out” line during times that the SMART-TOUCH is not in use. We recommend that a non-listed, dedicated phone line be used for the SMART-TOUCH. This will keep people from calling the line when an announcer needs to get on the air!

Finally, a 25-pin cable needs to be connected between the SMARTCASTER and the SMART-TOUCH. This cable contains the data lines needed from the SMARTCASTER to communicate with the SMART-TOUCH.

FRONT PANNEL

There are several switches and LED's on the front of the SMART-TOUCH that merit explanation. The left-most switch is the power switch, and the LED next to it lights when power is on. The next twelve LED's light when the corresponding button is pushed on the telephone. The Sequence LED lights when either a valid security code has been type in, or the Code Defeat switch is on. The Off Hook LED lights when the SMART-TOUCH answers the phone. (If anyone calls while this light is on, they will get a busy signal.)

There are two volume knobs located on the SMART-TOUCH. These control volume into the earpiece of the phone at the remote site, and volume from the phone-line to the system outputs. The Code Defeat switch can be used to bypass the security code. If someone calls with the switch on, they will immediately hear the air cue in the earpiece of the phone. At this point, they simply need to type in the remote number to begin control of the SMARTCASTER. (Obviously, this is a dangerous situation. We recommend that this switch always be off.) The LED next to the switch lights when Code Defeat is on.

Finally, at the far right, there is a reset switch. If for any reason, the system needs to be reset, simply toggle this switch. The SMART-TOUCH will go off hook for a few seconds, and then will be ready to accept calls.

SMART-TOUCH RECORD

This document outlines how to set up and run a record “template” using the SMART-TOUCH. All other SMART-TOUCH information may be found in the Operations’ manual under the heading, “Remotes.”

The way the SMART-TOUCH performs a recording is by setting up a remote “template.” This concept is similar to normal playback templates create for SMART-TOUCH remotes.

To make a SMART-TOUCH Record Template:

- Select “REMOTES” on the menu bar under PROGRAMMING.
- Press [F2] to Add/Edit a template.
- Enter a new (unused) three-digit number to designate the newly created template.
- When asked, “Is this a (r)ecord or (p)layback template?” pick “R”.

Now the system shows you the fields where information about the template may be added. The information required includes:

- Intro is an Audio cut (normal 5 digit cut number) that plays back down the phone line when the user calls in. This cut instructs the caller on what to do.

- Cuts 1 through 7 represent “slots” where 5-digit audio cut numbers are placed. Later, the user selects which of these cuts to record or playback.

This completes the setup of a SMART-TOUCH record template. Press [ESC] to return to the main menu. Assuming that the SMART-TOUCH itself is hooked up and working, nothing more is required.

Running a SMART-TOUCH record involves the following steps:

- Dialing into the SMART-TOUCH and “logging in” using your four-digit code number.
- Entering the Template number for the SMART-TOUCH Record Template.

At this point, the “intro” audio cut plays down the phone line. The audio cut instructs the caller as to which cut is which (of the 7) and what keys to press to audition or record. To audition back any of the 7 cuts, the user presses one number in the range of 1-7. To record any of these cuts, the user presses “8” first, then one number in the range of 1-7 and begins speaking. To conclude the record (or audition), press “0”.

An Example:

One of the radio stations where I worked had people stationed around in smaller communities that would call in a short (usually 5 to 15 min.) program detailing the happenings of smaller towns around ours. We would always have to wait for the call, cue up a reel-to-reel and let them do the recording. Usually, we'd monitor the call in case the caller made some mistake and had to start over. Then, we'd take the reel into the control room and play it back.

Let's take a look at how this would look with SMART-TOUCH Record.

Our report (say, "Judy"), calls into the SMART-TOUCH. At the security tone, she enters in her four-digit security number. As confirmation, she now receives about 10 seconds of air cue down the phone line.

Once the line is silent again, she enters her three-digit "template" number.

Down the phone line she hears the intro cut playing. It probably would say something like, "Ok, Judy, Cut 1 is Monday's show, cut 2 is Tuesday's show, etc. Remember, press 8 followed by the number of the day that it is to begin your recording. When you're one, press 0. Once you press 0, you can press today's number again to audition your show to make sure everything's there. When you're completely finished, press the pound (#) key. Then press the Star (*) key three times to hang up."

If it were Tuesday, Judy would press 8 followed by a 4 and begin speaking. When she was finished she presses 0. She could then audition back the Thursday cut by pressing 4 again. <<<Change tenses>>>

Once completely done, she presses the pound (#) key followed by three star keys (***) to hang up the phone.

APENDX “A”

Smart Touch TTL logic Conditionals

On Software versions in the 11’s and later, there is a feature to suppress the display of Smart Touch connections to avoid interference with the sound and input diagnostics. To trouble shoot the cable, you must turn “Off” the Smart touch option in User Setup, question #4. Set this to “N” to enable the diagnostics, note this disables the Smartcaster from acting on the inputs, so templates will not run from this configuration, but we can verify the connections between Smartcaster and Smart touch.

At “Rest” with no connection made on the phone line, you will see inputs 25, 26, 27, 28, 29 all in the “On State” (Checked and with a block showing an active input.)

During the login, you will “See” the digit “*” displayed as the digit is decoded, this is the TTL line 28 showing a “Low” of “off” status. (The block clears, do note that the check mark remains.) At the conclusion of security, TTL 29 goes to the “Off” state; this tells Smartcaster the smart touch is active ready.

Decoding the other digits:

DTMF	TTL Low
1	25
2	26
3	25 & 26
4	27
5	25 & 27
6	26 & 27
7	25,26 & 27
8	28
9	25 & 28
*	25, 26 & 28
0	26 & 28
#	27 & 28

In return, the Smartcaster can raise some conditions in the Smart Touch. Smartcaster can pull the relay EBS relay. It can mute the Air output-although that isn’t used anymore. Smartcaster can swap between the AIR CUE input being returned to the phone line, and the STUDIO Input. Finally the Smartcaster controls the return audio feed mute on the phone return.

The Smartcaster does not have confirmation of any of these actions, in other words, the Smartcaster will read and act on incoming TTL inputs, even if the outputs are not plugged in or active. Diagnosis of Smartcaster to Smart Touch TTL logic is another exercise.

Appendix “B”

Resetting the Security Code

The SMART-TOUCH can be configured with a security code in order to keep unwanted “visitors” from controlling your radio station. This is set via dip switches located inside the SMART-TOUCH. To set the switches, you need to open the rack-mount, and locate the dip switches on the PC board. Please take care not to accidentally disconnect any wiring. The SMART-TOUCH is already configured with the security code “8888”,

To change the security code, you will need to refer to the table on the following page. There are six switches labeled zero through five. (The switch closest to the large ID is pin 5.)

Switch Settings for Security Codes

Switch						Code				Switch									
5	4	3	2	1	0	1	2	3	4	5	4	3	2	1	0	1	2	3	4
0	0	0	0	0	0	8	8	8	8	1	0	0	0	0	0	7	7	7	7
0	0	0	0	0	1	1	3	9	7	1	0	0	0	0	1	7	9	3	1
0	0	0	0	1	0	3	9	7	1	1	0	0	0	1	0	1	7	9	3
0	0	0	0	1	1	9	7	1	3	1	0	0	0	1	1	3	1	7	9
0	0	0	1	0	0	7	1	3	9	1	0	0	1	0	0	8	3	1	7
0	0	0	1	0	1	2	6	8	4	1	0	0	1	0	1	4	8	6	2
0	0	0	1	1	0	6	8	4	2	1	0	0	1	1	0	2	4	8	6
0	0	0	1	1	1	8	4	2	6	1	0	0	1	1	1	6	2	4	8
0	0	1	0	0	0	4	2	6	8	1	0	1	0	0	0	8	6	2	4
0	0	1	0	0	1	2	5	8	0	1	0	1	0	0	1	0	8	5	2
0	0	1	0	1	0	5	8	0	2	1	0	1	0	1	0	2	0	8	5
0	0	1	0	1	1	8	0	2	5	1	0	1	0	1	1	5	2	0	8
0	0	1	1	0	0	0	2	5	8	1	0	1	1	0	0	8	5	2	0
0	0	1	1	0	1	1	1	2	2	1	0	1	1	0	1	2	2	1	1
0	0	1	1	1	0	2	2	3	3	1	0	1	1	1	0	3	3	2	2
0	0	1	1	1	1	3	3	4	4	1	0	1	1	1	1	4	4	3	3
0	1	0	0	0	0	4	4	5	5	1	1	0	0	0	0	5	5	4	4
0	1	0	0	0	1	5	5	6	6	1	1	0	0	0	1	6	6	5	5
0	1	0	0	1	0	6	6	7	7	1	1	0	0	1	0	7	7	6	6
0	1	0	0	1	1	7	7	8	8	1	1	0	0	1	1	8	8	7	7
0	1	0	1	0	0	8	8	9	9	1	1	0	1	0	0	9	9	8	8
0	1	0	1	0	1	9	9	0	0	1	1	0	1	0	1	0	0	9	9
0	1	0	1	1	0	0	0	1	1	1	1	0	1	1	0	1	1	0	0
0	1	0	1	1	1	4	1	4	1	1	1	0	1	1	1	1	4	1	4
0	1	1	0	0	0	4	2	4	2	1	1	1	0	0	0	2	4	2	4
0	1	1	0	0	1	4	3	4	3	1	1	1	0	0	1	3	4	3	4
0	1	1	0	1	0	4	5	4	5	1	1	1	0	1	0	5	4	5	4

0	1	1	0	1	1		4	6	4	6		1	1	1	0	1	1		6	4	6	4
0	1	1	1	0	0		4	7	4	7		1	1	1	1	0	0		7	4	7	4
0	1	1	1	0	1		4	8	4	8		1	1	1	1	0	1		8	4	8	4
0	1	1	1	1	0		4	9	4	9		1	1	1	1	1	0		9	4	9	4
0	1	1	1	1	1		4	0	4	0		1	1	1	1	1	1		0	4	0	4

APENDEX "C"

Call Progress Decoder info:

http://www.broadcastboxes.com/products/CP-2_lit.html

Circuitwerkes' CP-2 Call progress Decoder Option Board

The CircuitWerkes CP-2 Call Progress Decoder is a precision tone decoder designed to listen for the presence of dial tone or busy (reorder) signals on telephone systems that do not provide end of call battery signaling. When dial tone or busy is detected for a period of several seconds, the CP-2 breaks the connection to the auto coupler, or phone system, causing it to hang up.. Note: high ambient audio levels can mask (or simulate) central office call progress tones, so some adjustment of send audio may be required for reliable operation. The send audio level may need to be set slightly lower than normal to allow the call progress decoder to recognize the tones if used over continuous program feeds.

The CP-2 is jumper able to detect either or both dial (via J1) and busy (via J2, position "B") tones. Completely removing J1 or J2 disables that particular function. It is strongly suggested that you disable whichever tone is not used on your phone system to reduce the risk of false tripping. Also, when J2 is set for the "A" position, any call progress tone will cause a hang-up. Because this mode is especially easy to false trip, it should be used only as a last resort when your phone system does not provide busy (reorder) or dial tones. To detect all tones, J4 must also be in the "A" position. The "620" position is for detecting single 620Hz tones used in some Foreign phone systems. The length of time required for disconnection is adjustable by the two potentiometers on the board. At least 3 to 5 seconds is suggested for both types of signals to prevent false tripping. Turning the pots clockwise increases the delay before hang-up. J3 adds 10dB of gain to the input & **MUST** be "on" for busy detection. J8 sets the duration of the CPC output. When J8 is off, CPC will be several seconds long. When on, CPC will be a few hundred milliseconds.

AC or DC Power is supplied at the coaxial connector. The power supply should be 7 to 15V and capable of providing 100mA. The two RJ-11 jacks connect the CP-1 to the phone system (wall) and to the answering device or subordinate phone system which requires CPC (phone). The CP-2 will work with either jack used for either function.