

# **CONNECT SYSTEMS INCORPORATED**

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## **FLEX SERIES UNIVERSAL CONTROLLER**

**CD2-CAR PLUS**

### **User's Instruction Manual**

Made in U.S.A.

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## GENERAL DESCRIPTION

The FLEX Series Universal Controller CD2-CAR PLUS by Connect Systems Inc. is an ANI DECODER capable of displaying not only the ANI received, but the user who generated the ANI. To accommodate the many programmable features, the system allows the user to program the system via a telephone plugged in the back of the unit, through the telephone line, over the air, or through a computer.

Powerful built in standard features make the FLEX Series Universal Controller CD2-CAR PLUS the best deal going in ANI DECODERS today!

## THE CONNECTIONS

**RX AUDIO** For the products detecting CTCSS, DCS, or LTR, or products that use the internal squelch, the RX AUDIO must be connected to the discriminator of the radio. For all other products the RX AUDIO can be connected to the discriminator, high side of the volume control, or the speaker.

**TX AUDIO** For products that generate CTCSS, DCS, or LTR, the TX AUDIO must be connected directly to the modulator of the transmitter. For LTR and DCS, the modulator must be true FM. For CTCSS the modulator can be phase modulated or FM modulated. For all other applications, connections to the high side of the microphone is acceptable.

It should be noted that in most communication controllers there is a separate line for voice audio and a separate line for the CTCSS, DCS, or LTR signals. This is because to combine the two the controller has to have a limiter on the voice line to prevent over modulation and other undesirable side effects. The Flex Series Controllers has a built in limiter thereby not requiring separate lines.

**PTT** The PTT normally hooks to the PTT of the transmitter. If you are using a Hand Held with the PTT sharing a common connection with the transmit audio, then attach a resistor with a value between 2.4K and 4.7K from the PTT to the TX Audio and attach the TX audio line to the center conductor of the microphone cable. In most product that use the PTT, the AUX relay can also be used as a PTT connection. This has the advantage of allowing positive keying or other situations where the normal open collector PTT does not work.

**COS** Connect to a point that has a good voltage swing when the squelch is opened/closed. The best point to connect is to the collector of the transistor that controls the busy light (if the receiver has one). Otherwise you may connect to the squelch control voltage. The minimum voltage for the COS

is about .4 volts and the Maximum voltage is the supply voltage.

Some radios have that point coming out the back of the radio. It sometimes goes under the name of squelch detect, sq det, or COR. In some case a pull up or pull down resistor is necessary.

The polarity and other parameters associated with the COS is contained within the programming parameters described later. It should be noted that in most cases, the COS can be replaced with the internal squelch.

**SENSE** This point is used as an auxiliary input for specialized purposes in certain products. As an example, this input may be used to detect the presence of a CTCSS/DCS signal in an LTR system. The minimum voltage for the sense input is about .4 volts and the Maximum voltage is the supply voltage.

The polarity and other parameters associated with the SENSE is contained within the programming parameters if used.

**AUX RELAY** These two points connects to the center contact and normally open contact of the relay. The use if any depends upon the product.

**+12 VDC** Connect to a source of 12 volts to 15 volts DC. The Flex Series Controllers are reverse polarity protected, so a polarity mistake will not damage the product. Connect the return lead to ground. The two grounds in the system are connected to each other.

## ADJUSTMENTS

### **P1 HYB BAL**

The Hybrid Balance control is used to null out the mobile return audio in full duplex mode. The alignment must take place on one of the phone lines the Flex Series controller will be serving. (This alignment can not be done at the shop prior to delivery to the site.)

Have a mobile place a call through the Flex Series Controller. The party answering the called phone should leave the phone off hook during the alignment procedure.

Monitor the transmitter output with a service monitor or connect an oscilloscope to the "TX OUTPUT" terminal on the rear of the Flex Series Controller. Place all four Dip switches in the off position.

Have the mobile simultaneously press digits 3 and 6 on his touch tone keypad. This will result in the transmission of a single 1477 Hz tone.

Adjust the "HYB BAL" Potentiometer to produce the least audio output. Try all possible dip position combinations and null each time. The combination which gives the minimum output is the correct position to use.

Changes made within the telephone company or rerouting of telephone lines could occasionally require re-adjustment of the hybrid.

### **P2 Not Used**

### **P3 Tel Vox**

Used for detection of call progress tones and sensitivity to voice in Vox operated applications. Turning the pot clockwise increases its sensitivity.

### **P4 Preamp**

The preamp control is used to match the audio level from your receiver to the Flex

Series controller. To adjust, a signal containing 100 Hz CTCSS with about 600 Hz deviation should be applied to the receiver. Adjust the preamp control until a level of 3 volts peak to peak is observed at test point 6. If an oscilloscope is not available, read 1 volt RMS using a VOM.

**P5 RX VOX** Used in VOX mode only. Sets RX audio triggering sensitivity. Should be fully clockwise in VOX simplex applications. Reduce setting when used through repeaters if land line cannot respond to mobile during hang time due to noise or tone on the repeater carrier.

**P6 AUDIO OUT** Adjust the maximum level going to the transmitter. When turned fully clockwise, an output voltage of about five volts peak to peak is obtained. In most case the output level can also be set in the programming mode.

**P7 CONTRAST** Sets the contrast of the LCD. Adjust to what is most pleasing to the individual.

**P8 SQUELCH** Advance clockwise to a point just beyond where the front panel display "Rx" message disappears. Not all products will display the Rx message.

## JUMPER STRAP OPTIONS

- JP1** **Line In Use Detector.** When inserted, enables line in use detection. That allows the system to detect if another phone in parallel with the controller is off hook. Will only work with a phone system where the nominal on hook voltage is about 48 volts.
- JP2** **Preamp Gain.** With no jumper installed, gain is 100. With the jumper connected to the bottom two pins, the gain is about 10 with a .0047 uF capacitor giving 3 db cutoff of xxx Hz. With the jumper connect to the two pins, the gain is about 10 with a .047 uF capacitor giving a 3 db cutoff of xxx Hz.
- JP3** TO BE DETERMINED
- JP4** TO BE DETERMINED
- JP5** TO BE DETERMINED
- JP6** TO BE DETERMINED
- JP7** TO BE DETERMINED
- JP8** TO BE DETERMINED
- JP9** TO BE DETERMINED
- JP10** TO BE DETERMINED
- JP11** NOT USED
- JP12** NOT USED
- JP13** NOT USED
- JP14** NOT USED
- JP15** The terminating resistor when used for RS485 communication. Only use once per system.
- JP16** When inserted, allows the TX Audio output to be DC coupled.

## PROGRAMMING INFORMATION

This section on programming shows the different programming fields that are available across the many different FLEX SERIES UNIVERSAL CONTROLLER product lines. Not all these fields will be used in a particular product.

This paging terminal can be programmed four different ways... Locally, remotely over the air, remotely from any touch tone phone, or through a computer.

**Local Programming:** Simply plug any DTMF telephone set into the rear panel RJ-11 jack labeled "PROG". This allows the telephone keypad to act as a programming keyboard. The front panel display will show either the keystrokes or the results of the keystrokes.

**DTMF Over the Air Programming:** The paging terminal can be programmed over the air from any DTMF equipped radio. A DTMF sequence is transponded in response to each command you enter and is used to display the results of your programming on our CD-2 or a special version of the Flex Series Controller.

**Remote Dial Up Telephone Programming:** Occasionally the paging terminal will be located out of radio range and over the air programming will not be possible. Simply dial up the paging terminal to do the programming. You can perform all the programming functions remotely that you can do locally. If the programming sequence is accepted, a DTMF sequence is transponded in response to each command you enter and is used to display the results on a special version of the Flex Series Controller. If the command entered is invalid, three beeps will be generated to tell the user a mistake has been made.

**Computer Programming:** This self contained program operating in the windows environment will allow the user to easily make changes to the characteristics of the paging terminal. This program is not expected to be released till something next year. This programming can be accomplished by using a laptop or other computer and plugging into the front panel plug or by attaching a modem into the back panel plug. If a modem is used, the unit can be programmed remotely.

**To Enter and Exit Programming Mode:** To enter the programming mode, you must enter the programming mode

access code. The access code consist of six digits plus two leading pound "##" characters and a trailing pound character. The factory default programming access code is 123456. The programming access code is always six digits in length. Therefore the code to get into the programming mode is ##123456#. This code will be valid until you have changed the Programming Mode Access Code in the GLOBAL programming area.

When programming is completed, send ##### to exit the programming mode. If you forget, the Paging terminal is designed to self exit a few minutes after the last DTMF command.

**Command Syntax:** When programming, you will enter a programming sequence such as \*0000#03#1#. All commands start with a "\*" and end with a "#". There may be one or more additional "#" to act as a delimiter between fields.

**Leading zeros:** Data fields require that you enter the precise number of digits specified. Numbers that have fewer digits than the field requires can use leading zeros.

**Resetting your position:** If you are distracted or have a lapse and forget where you are in the middle of a command sequence, simply send \* three times (\*\*\*) and start the sequence over again.

**Displaying the field:** All the fields can be displayed by the command \*nnnn#nn\*. The data followed by the # key is replaced by a single star. If system is being programmed by a telephone plugged into the back of the unit, the system will display the results on the internal LCD display. If the system is being programmed remotely by DTMF over the radio, then the DTMF string representing the field will be sent back over the radio. If the system is being programmed remotely by DTMF over the telephone, then the DTMF string representing the field will be sent back over the telephone. If the system is being programmed by a computer, then the results will be sent back over the RS232 connector located in the front and the back of the unit.

**Different Areas:** The programming of the system can be broken up into different areas. The first area which all products have is called the "Global Programming Area". Depending on the product, different areas may be used such

as the "Speed Calling Area" or the "Speed Dialing Area." The details will be described below.

**Gang Programming:** Certain areas will allow gang programming. This is to allow an entire set of users to be programmed at once with the same value instead of having to set everybody individually. As an example, gang programming allows all CTCSS users to be turned on or be turned off. The details will be discussed in the various programming areas described below.

## **DIFFERENT PROGRAMMING AREAS**

### **GLOBAL PROGRAMMING AREA**

The global programming area is used to program parameters that is common to the entire product. All Global Programming commands start with \*0000#. An example is \*0000#01#J#

### **CTCSS PROGRAMMING AREA**

The CTCSS programming area is used to program parameters where the CTCSS tone is of importance. As an example, the command \*1067#04#1# is used to turn on user with a tone of 67 hertz.

The general form of this area is \*1nnn#... where the 1 indicates the area is CTCSS and the nnn corresponds to a valid CTCSS number.

If the nnn has a value of 999, then gang programming is used and the 51 different CTCSS users will have the same value programmed.

As an example, if you want to turn off all the CTCSS users, use the command \*1999#04#0#. The 1 indicates it's a CTCSS field, the 999 indicates it's a gang programming command, the 04 indicates its an enable/disable user field, and the 0 indicates the user should be disabled.

### **DCS PROGRAMMING AREA**

The DCS programming area is used to program parameters where the DCS code is of importance. As an example, the command \*2023#04#1# is used to turn on user with a code of 023.

The general form of this area is \*2nnn#... where the 2 indicates the area is DCS and the nnn corresponds to a valid DCS number. If the nnn has a value of 999, then gang programming is used and the 112 different DCS users will have the same value programmed.

As an example, if you want to turn off all the DCS users, use the command \*2999#04#0#. The 2 indicates it's a DCS field, the 999 indicates it's a gang programming command, the 04 indicates its an enable/disable user field, and the 0 indicates the user should be disabled.

## **LTR PROGRAMMING AREA**

The LTR programming area is used to program parameters where the LTR ID number and repeater number is of importance. As an example, the command \*3015#246#04#1# is used to turn on user with a repeater number of 15 and a ID number of 246.

The general form of this area is \*30nn#iii#... where the 30 indicates the area is LTR and the nn corresponds to a valid repeater number and iii is the ID number.

A valid repeater number has to be between 01 and 20 and a valid ID number has to be between 001 and 250. Leading zeros must be used for the repeater number and optionally for the ID number.

If the iii has a value of 999, then gang programming is used and the 250 different ID numbers for the repeater selected will have the same value programmed.

## **SPEED DIAL NUMBER AREA**

The speed dial number area is used to program parameters relating to speed dialing. As an example, the speed dial number. In a normal phone patch operation, only the speed dial number is used. However, if wide area networking is desirable, then other parameters may be necessary.

The general form of this area is \*40nn#... where the 40 indicates the area is speed dialing and the nn corresponds to the speed dial number position in memory. As an example, 4000 would indicate the first speed dial number position and 4010 would indicate the eleventh speed dial number position. If the 40nn is replaced by 4999, then gang programming is used and all 100 different speed dial number positions will have the same value programmed.

## **SPEED CALL NUMBER AREA**

The speed call number area is used to program parameters relating to paging. Typically, the only parameter in the speed call number is the paging number. This allows a user to enter a number from 000 to 999 and the paging

corresponding to that user will be generated. See pager number fields below for a more detailed description.

The general form of this area is \*50nn#... where the 50 indicates the area is speed call and the nn corresponds to the speed call number position. As an example, 5000 would indicate the first speed call number position and 5010 would indicate the eleventh speed call number position. If the 50nn is replaced by 5999, then gang programming is used and all 100 different speed call number positions will have the same value programmed.

#### **PUSH TO CONNECT USERS AREA**

The push to connect users area is used to automatically connect different sites in a wide area network. This will be able to be used in conventional as well as LTR controllers.

The general form of this area is \*60nn#... where the 60 indicate the area is for push to connect users and the nn corresponds to the push to connect users position. As an example, 6000 would indicate the first push to connect users position and 6010 would indicate the eleventh push to connect users position. If the 60nn is replaced by 6999, then gang programming is used and all 100 different push to connect users positions will have the same value programmed.

#### **VOICE PROMPT AREA**

The voice prompt area is used to enter a voice message. This area is active in all products but not all products use the voice prompt capability.

For recording, the format used is \*7000#n#0#. The value n corresponds to one of the eight voice memory locations whose maximum record time is as follows:

<u>N</u>	<u>Maximum Record Time</u>
0	9 seconds
1	9 seconds
2	9 seconds
3	9 seconds
4	9 seconds
5	25 seconds

6	25 seconds
7	25 seconds

The total record time for this product is two minutes.

To play back, use the command \*7000#n\*

When recording, the system will stop recording either when the maximum time has expired or the user enters any DTMF key.

### **PROGRAMMING FIELDS THAT HAVE TWO POSSIBILITIES**

If the field is in the form of \*nnnn#nn#J# such as the TELCO PROGRAMMING field which is \*0000#01#J#, then the user must enter the value of 0 or 1 for the field. Any other number will be rejected. In most cases, J = 0 means disable the function and J = 1 means enable the function.

### **PROGRAMMING FIELDS THAT REQUIRE A STRING OF NUMBERS**

If the field is in the form of \*nnnn#nn#N..NN# such as the PROGRAMMING MODE ACCESS CODE field which is \*0000#05#NNNNNN#, then the user must enter in a number for each of the characters. Some fields require all the numbers to be entered and some fields may only require one or more characters to be entered.

### **PROGRAMMING FIELDS THAT REQUIRE A VALUE**

If the field is in the form of \*nnnn#nn#MMM# such as the TURN ON DELAY field which is \*0000#08#MM# or the DTMF TELCO LEVEL field which is \*0000#11#MMM#, then the user must enter anywhere from one to three characters, depending on the field and the value must be in the range specified. Some fields allow a range of values and also the value of zero. There is no need for leading zeros.

### **PROGRAMMING FIELDS THAT EXPECT AN LTR USER**

If the field is in the form of \*nnnn#nn#RRIII#, then the system is expecting a valid LTR number. The first two digits is the repeater number and must be between 01 and 20. The next three digits is the ID number and must be between 001 and 250. Leading zeros must be entered.

## PROGRAMMING FIELDS THAT EXPECT A PAGER NUMBER

When applicable, this system supports two tone, five six tone, CTCSS, DCS, LTR, and DTMF paging. A paging field is a variable length numeric field where the first three characters is the user paging number, the next four characters are the CTCSS/DCS number if used, and the rest of the characters are the paging format as shown below:

UUU CCCC 0 R	CTCSS/DCS	Signaling only
UUU CCCC 5 R	CTCSS/DCS	Signaling + one
way voice		
UUU CCCC 1 GT GT	TWO TONE	Signaling only
UUU CCCC 6 GT GT	TWO TONE	Signaling + one
way voice		
UUU CCCC 2 TTT	FIVE/SIX TONE	Signaling only
UUU CCCC 7 TTT	FIVE/SIX TONE	Signaling + one
way voice		
UUU CCCC 3 D...D	DTMF	Signaling only
UUU CCCC 8 D...D	DTMF	Signaling + one
way voice		
UUU 0000 4 RR III	LTR	Signaling only
UUU 0000 9 RR III	LTR	Signaling + one
way voice		

UUU can be any three digit number between 000 and 999 and is the number the user will enter when they want to page someone.

CCCC is the CTCSS or DCS number. If the number is a CTCSS number, then the first digit is a 1 and the next three numbers are any valid CTCSS number shown in a table below. If the number is a DCS, then the first digit is a 2 and the next three numbers are any valid DCS number shown in a table below. If the value is 0000, then the CTCSS/DCS tone is not used.

The next digit is between 0 and 9 and represents the type of paging format to be used as shown in the table above.

## PROGRAMMING FIELDS THAT EXPECT A TELEPHONE NUMBER

If the field is in the form of \*nnnn#nn#tt...t#, then the system is expecting a telephone number. Telephone numbers can have the following numbers and symbols:

0	5	*	D
1	6	#	W
2	7	A	+
3	8	B	(
4	9	C	)

The "W" key is used for wait for dial tone. The "+" key is used for delay 3 seconds, and the "(" and ")" keys are used to delimit the telephone number to make it easier to read and has no effect on the dialing.

If you use a standard telephone keypad, the numbers and symbols are derived as follows:

0	press the 0 key
1	press the 1 key
2	press the 2 key
3	press the 3 key
4	press the 4 key
5	press the 5 key
6	press the 6 key
7	press the 7 key
8	press the 8 key
9	press the 9 key
*	press the 1 key for at least 3 seconds
#	press the 2 key for at least 3 seconds
A	press the 3 key for at least 3 seconds
B	press the 4 key for at least 3 seconds
C	press the 5 key for at least 3 seconds
D	press the 6 key for at least 3 seconds
W	press the 7 key for at least 3 seconds
+	press the 8 key for at least 3 seconds
(	press the 9 key for at least 3 seconds
)	press the 0 key for at least 3 seconds

If you have a keypad with the letters A - D, then those keys will generate A - D no matter how long or how short you hold down the key. The keys "\*" and "#" will act for as control functions no matter how long or short you hold down the keys.

A- D will generate DTMF tones A - D.

**PROGRAMMING FIELDS THAT REQUIRE AN ALPHNUMERIC STRING**

Certain fields such as fields that require the user to enter in CWID characters or names require letters and numbers. Being that the telephone has only 10 numbers, a method has to be used to accommodate all the letters, special characters, and numbers with only ten numeric keys. This is accomplished by pressing two numeric keys for each letter. As the user enters the second key, the display will show the equivalent letter, special character, or number. The table to accomplish this is shown below.

CHAR VALUE	CHAR VALUE	CHAR VALUE	CHAR VALUE
A 00	Z 25	y 50	- 75
B 01	a 26	z 51	+ 76
C 02	b 27	0 52	= 77
D 03	c 28	1 53	{ 78
E 04	d 29	2 54	} 79
F 05	e 30	3 55	[ 80
G 06	f 31	4 56	] 81
H 07	g 32	5 57	82
I 08	h 33	6 58	; 83
J 09	i 34	7 59	: 84
K 10	j 35	8 60	< 85
L 11	k 36	9 61	> 86
M 12	l 37	` 62	, 87
N 13	m 38	~ 63	. 88
O 14	n 39	! 64	? 89
P 14	o 40	@ 65	/ 90
Q 16	p 41	# 66	sp 91
R 17	q 42	\$ 67	sp 92
S 18	r 43	% 68	sp 93
T 19	s 44	^ 69	sp 94
U 20	t 45	& 70	sp 95
V 21	u 46	* 71	sp 96
W 22	v 47	( 72	sp 97
X 23	w 48	) 73	sp 98
Y 24	x 49	_ 74	sp 99

Certain field require the user to enter a CTCSS or DCS number. The allowable values for that type of field is shows below.

CTCSS ALLOWABLE ENTRIES			
630	114	179	
670	118	183	
694	123	186	
719	127	189	
744	131	192	
770	136	196	
797	141	199	
825	146	203	
854	151	206	
885	156	210	
915	159	218	
948	162	225	
974	165	229	
100	167	233	
103	171	241	
107	173	250	
110	177	254	

DCS ALLOWABLE ENTRIES								
006	051	132	214	266	365	464	627	
007	053	134	223	271	371	465	631	
015	054	141	225	274	411	466	632	
017	065	143	226	306	412	503	654	
021	071	145	243	311	413	506	662	
023	072	152	244	315	423	516	664	
025	073	155	245	325	431	523	703	
026	074	156	246	331	432	526	712	
031	114	162	251	332	445	532	723	
032	115	165	252	343	446	546	731	
036	116	172	255	346	452	565	732	
043	122	174	261	351	454	606	734	
047	125	205	263	356	455	612	743	
050	131	212	265	364	462	624	754	

## **SETTING EVERYTHING BACK TO FACTORY DEFAULT**

If for some reason it is necessary to set the system back to factory default, plug a telephone into the programming jack in the back of the unit and enter the command **\*\*\*123456\*\***. If the system is enabled to accept programming command from other sources such as over the radio, this command is valid from those sources too. You cannot disable the factory reset from working over the local programming jack.

## GLOBAL PARAMETERS

	TO PROGRAM	TO DISPLAY
	V	V
<b>TELCO PROGRAMMING</b>	<b>*0000#01#J#</b>	<b>*0000#01*</b>
J = 0 = Disabled      J = 1 = Enabled		Default = 1
When enabled, the controller will allow a person to call in via the telephone and program the various parameters. If disabled, the phone line will never answer.		
<b>RADIO PROGRAMMING</b>	<b>*0000#02#J#</b>	<b>*0000#02*</b>
J = 0 = Disabled      J = 1 = Enabled		Default = 1
When enabled, the controller will allow the parameters to be programmed by radio. If disabled, the controller will ignore any attempt to program the parameters via radio.		
<b>PHONE PROGRAMMING</b>	<b>*0000#03#J#</b>	<b>*0000#03*</b>
J = 0 = Disabled      J = 1 = Enabled		Default = 1
When enabled, the controller will allow the parameters to be programmed by a telephone plugged into the programming port in the back of the controller. If disabled, the controller will ignore any attempt to program the parameters via a telephone plugged into the back of the controller.		
<b>COMPUTER PROGRAMMING</b>	<b>*0000#04#J#</b>	<b>*0000#04*</b>
J = 0 = Disabled      J = 1 = Enabled		Default = 1
When enabled, the controller will allow the parameters to be programmed by a telephone plugged into the programming port in the back of the controller. If disabled, the controller will ignore any attempt to program the parameters via a telephone plugged into the back of the controller.		
<b>PROGRAMMING MODE ACCESS CODE</b>	<b>*0000#05#NNNNNN#</b>	<b>*0000#05*</b>
NNNNNN = 000000 - 999999		Default = 123456
Code must be precisely six digits. This code is used to enter the programming mode from all sources.		

### Transmitter parameters

<b>TURN ON DELAY</b>	<b>*0000#06#MM#</b>	<b>*0000#06*</b>
----------------------	---------------------	------------------



**AUX RELAY VALID TIME**                    **\*0000#13#MM#**                    **\*0000#13\***  
PP = 0 - 99 in second increments                    Default = 5  
The relay will stay on the number of seconds specified when  
an invalid ANI is received.

**ANI DISPLAY TIME**                    **\*0000#14#MM#**                    **\*0000#14\***  
PP = 0 - 99 in second increments                    Default = 5  
If the number is set to 0, then the ANI will be displayed  
until the next ANI comes in. If the ANI is not set to zero,  
then the ANI will be displayed for the time specified  
unless another ANI comes in earlier.

**ANI INTERCHARACTER TIME**                    **\*0000#15#MM#**                    **\*0000#15\***  
PP = 1 - 99 in 100 millisecond increments                    Default = 10  
The time that has to elapse between characters before the  
system considers it a complete ANI and will process it.



## **OPERATION**

### **CD2 CAR PLUS**

This product is a DTMF ANI DECODER that displays the ANI on the top line and the name of the individual associated with the ANI on the second line. The AUX RELAY can be turned on and off with the various ANI codes to give the user a method of activating an external device when either a specified user calls in or any unknown user calls in. Up to 100 different ANI's can be decoded with the names displayed. If the ANI is not defined, it will be displayed anyway but the second line will be blank. The last ANI will be displayed indefinitely or will be erased at the end of the time specified.

## LIMITED WARRANTY

Connect Systems Inc. (CSI) hereby warrants our products to be free from defective workmanship for a period of one year and defective parts for a period of one year from date of sale to the initial end user. This warranty applies only to the original consumer/end user purchaser of each FLEX SERIES CONTROLLER. During the first year of warranty, CSI will repair any of its products at no charge providing the defective unit is shipped prepaid and service is performed by CSI. Conventional prevailing labor and shipping charges will apply following the end of the first year. CSI, at its sole discretion, will replace defective parts on an exchange basis for the first year of ownership by the original purchaser. All shipping cost are the responsibility of the customer.

### **What is not covered by this limited warranty:**

This warranty shall not apply, if, in our judgment the defects are caused by misuse, lightning strikes, customer modification, water damage, negligent use, improper installation, overloads caused by external voltage fluctuations, use of unregulated power supply, damage caused by transit or handling or an abusive treatment not in accordance with ordinary product use or the product serial number has been removed, altered, or defaced. **Specific Exclusion:** This warranty specifically excludes lightning protection devices (MOVs and phone line fuses) and transistors in the PTT (Push to Talk) circuitry. These components can only fail from external abuse.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, STATEMENTS OR REPRESENTATIONS, AND UNLESS STATED HEREIN, ALL SUCH WARRANTIES, STATEMENTS OR REPRESENTATIONS MADE BY ANY OTHER PERSON OR FIRM ARE VOID. ALL IMPLIED WARRANTIES IN CONNECTION WITH THE SALE OF THIS EQUIPMENT, INCLUDING THE WARRANTY OF MERCHANTABILITY, SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LAST, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IN THE EVENT OF PRODUCT FAILURE WHICH PROVES TO BE CAUSED BY A DEFECT IN WORKMANSHIP OF MATERIALS, YOUR SOLE REMEDY SHALL BE THE REPAIR OF THE DEFECT BY CSI OR ITS APPOINTED REPAIR STATION AS STATION AS STATED IN THIS WARRANTY, AND UNDER NO CIRCUMSTANCES SHALL CSI BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE, OR INABILITY TO USE, THIS PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

If your new CSI product shall ever fail, contact Connect Systems Inc. Customer Service Dept. for repair and warranty information at (805) 642-7184

Note: Connect Systems Inc. reserves the right to render a modest service charge when returned units are found to be free of parts or workmanship defect(s) (i.e. operating to factory specification) within the first year of warranty. Such units will be returned freight collect to the sender, including the appropriate service charge.

## APPENDIX A

### FCC NOTICE TO USERS

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1. This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference which may cause undesirable operation.
2. This equipment generates and uses radio frequency energy and if not installed and used properly, i.e. in strict accordance with the service manual, may cause interference to radio or television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a residential installation.
3. If this equipment does cause 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:
  - a. Reorient the receiving antenna.
  - b. Relocate the equipment with respect to the receiver.
  - c. Move the equipment away from the receiver.
  - d. Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
  - e. Ensure that card mounting screws, attachment connector screws, and ground wires are tightly secured.
  - f. If cables not offered by this company are used with this equipment, it is suggested that you use shielded, grounded cables with in line filters, if necessary.
  - g. If necessary consult your dealer service representative for additional suggestions.
4. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.