

TAC SERIES

MODELS SH 16, 30, 50, 75, 100
Now Up To 14 Digit Dialing

2000 User/ Installer Guide



Select Entry Systems



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THIS MANUAL COVERS FIRMWARE VERSIONS: 3.XX

FCC REQUIREMENTS:

FCC REGISTRATION NUMBERS

FCC68: CPW 74F-63331-MT-E

RINGER EQUIVALENCE: 0.2A/.5B

COMPLIES WITH PART 15 SUBPART J OF FCC RULES

1. The Federal Communications Commission (FCC) has established Rules which permit SELECT ENTRY to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin lines.
2. If SELECT ENTRY is malfunctioning, it may affect the telephone lines. In this case, disconnect SELECT ENTRY until the source of the difficulty is traced and corrected. If this is not done, the telephone company may temporarily disconnect this service.
3. The telephone company may make changes in its' technical operations and procedures; if such changes affect the compatibility or operation of this device, the telephone company is required to give adequate notice of the changes.
4. If the telephone company requests information on what equipment is connected to their lines inform them of:
 - a. The telephone number to which SELECT ENTRY is connected.
 - b. The ringer equivalence number.
 - c. The USOC jack required (RJ-11).
 - d. The FCC registration number.

RADIO AND TELEVISION INTERFERENCE

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. The SELECT ENTRY has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation.

FOR CANADIAN USERS: DOC # 260 1075 A

1.0 INTRODUCTION

The SH-16, SH-30, SH-50, SH-75 and SH-100 are automatic call and entry control systems. The SH-100 will dial 100 telephone numbers; the SH-75 will dial 75 telephone numbers; the SH-50 will dial 50 telephone numbers; the SH-30 will dial 30 telephone numbers; and the SH-16 will dial 16 phone numbers.

The SELECT ENTRY is provided with a relay output for controlling doors, gates, elevators or any device actuated by a contact closure or contact opening. The SELECT ENTRY is a microprocessor based device which when taken off-hook will allow the entering of 2 digits then automatically dial the selected phone number that was programmed in memory. The SELECT ENTRY has a built in, switch selected, 1 or 4 minute talk-time limit with warning tones at the end of talk time.

A Personal Identification Number (PIN) is available. Entering a 3 digit SELECT ENTRY CODE, while the SELECT ENTRY is on hook, and assuming a valid number from 001 - 999 has been programmed into the SELECT ENTRY, will operate the relay output.

The SELECT ENTRY will out-dial either pulse (rotary) or TOUCH-TONE via an internal switch selection. While the SELECT ENTRY is dialing, the handset is disconnected, keeping the dialed phone number confidential.

The (OPTIONAL) 12 volt DC .7 A/hr internal battery will operate the SELECT ENTRY for a minimum of 1 hour with no AC power applied. The battery is NOT required for memory storage. The SELECT ENTRY is supplied with a 16 vac transformer which will operate the SELECT ENTRY and recharge the optional internal battery ONLY.

DO NOT CONNECT ANY OTHER DEVICES TO THE TRANSFORMER OR THE BATTERY.

Calling the SELECT ENTRY from a TOUCH-TONE telephone will allow the user to control the output relay. When the SELECT ENTRY is called, the SELECT ENTRY will ring, go off hook and send a one second tone. Entering the proper password will allow access to the output relay or if the REMOTE PROGRAMMING is installed, enter the remote programming mode.

1.1 ENVIRONMENTAL

Indoor or Outdoor? The standard SELECT ENTRY housing is suitable for outdoor installations. For indoor installations on dry-wall type surfaces, contact SES about the optional flush ring (OPTFMR).

An optional pedestal mount for curb, street, or slab mounting is also available (PST2).

Dimensions? SELECT ENTRY housing is 10" W X 14" H X 2 5/8" D.

1.2 ELECTRICAL

Power? The SELECT ENTRY uses 16 volt ac 50/60 Hz. @ 300 ma. A 16 vac transformer is supplied with each purchase in the U.S. only. The installer may elect to provide his own 12 volt 300 ma. DC supply. **HOWEVER, AC TRANSFORMER AND DC SUPPLY CANNOT BE USED AT THE SAME TIME.**

Ground? The SELECT ENTRY must be connected to a good earth ground with at least # 16 ga. stranded wire. This wire **MUST** be a minimum of 16 ga. connected to a ground rod or cold water pipe. The maximum wire length is 50 feet. Surge damage protection built into SELECT ENTRY is diminished if adequate earth ground is not provided.

Relay capabilities? 24 volts AC or DC at 3 amp. Form "C" (SPDT) contacts are on the control output relay for controlling devices.

Gate controllers? Some solid-state gate controllers react to the over-voltage protection devices used on all SES products. The symptom is an intermittent gate open condition. If this occurs, add an external relay, controlled by the SELECT ENTRY output relay contacts to your gate system to help isolate the contacts going to your solid state controller.

Heavy weather considerations? While the SELECT ENTRY front door is well gasketed, if driving rains or snow are a problem, a keypad cover (KCS, or KCR) is available from SES as an accessory.

2.0 INSTALLATION INSTRUCTIONS

Installation of SELECT ENTRY requires co-ordination with your telephone company. It is recommended that a TOUCH TONE line be installed to allow much faster dialing. If a TOUCH TONE line is not available the SELECT ENTRY can be switched to dial-out pulse (rotary).

The phone company will require the following information:

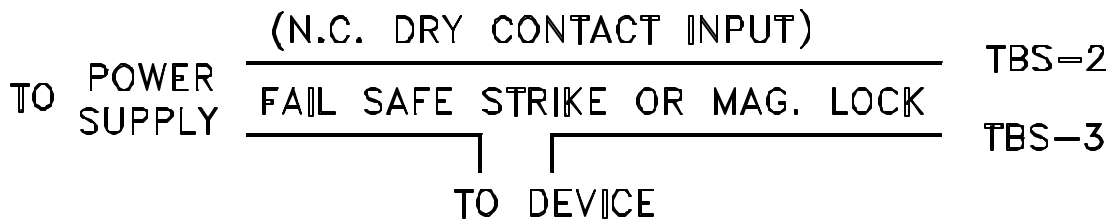
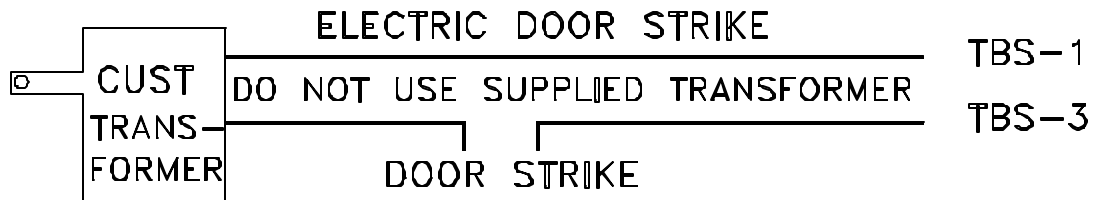
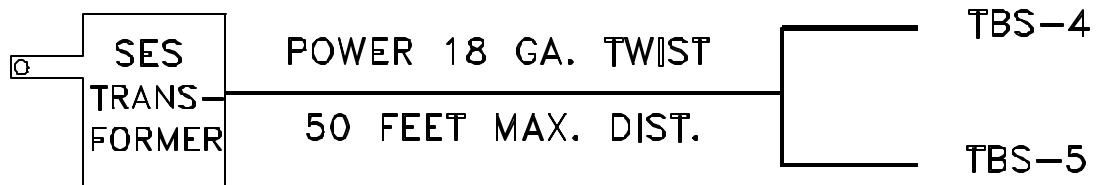
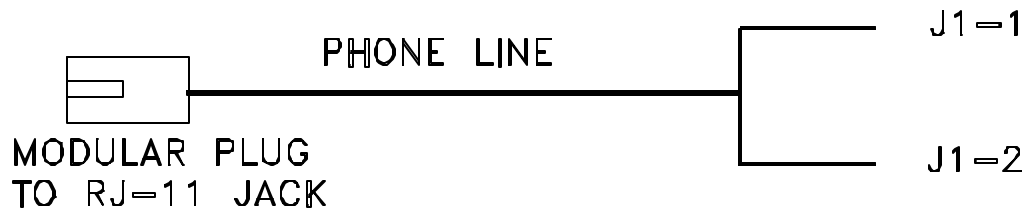
FCC REGISTRATION # CPW 74F-63331-MT-E
RINGER EQUIVALENCE- 0.2A/0.5B
CONNECTOR: STANDARD RJ-11 JACK

The desired location of the telephone jack must be given to the phone company at the time the phone line is ordered. See installation instructions.

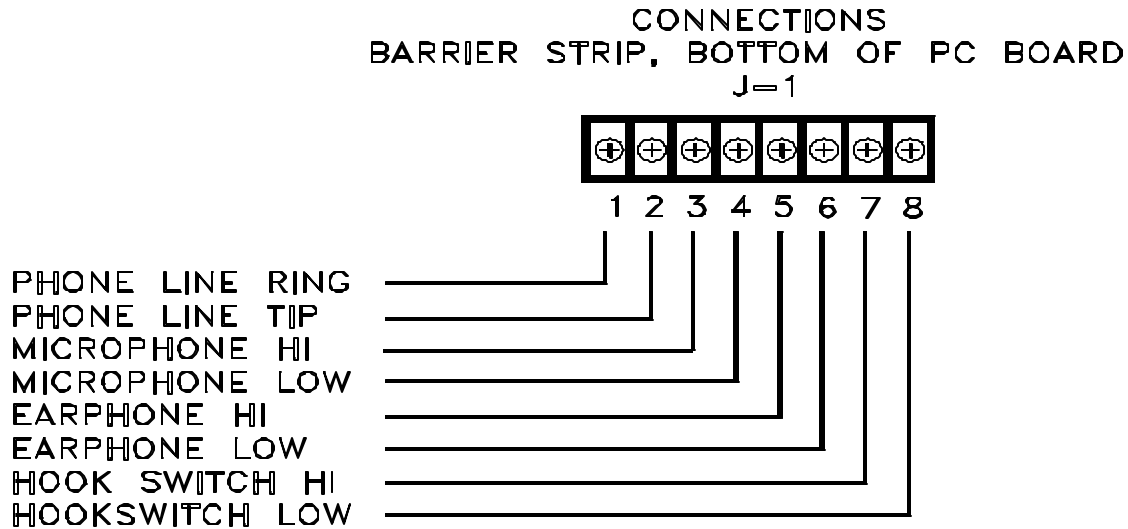
SELECT RELAY /2R: IF OPTION 2R IS INSTALLED, ACCESS TO A SECONDARY RELAY IS AVAILABLE FOR CONTROLLING SPECIAL DEVICES.

STANDARD HANDSET

3.0 WIRING HOOKUP CONNECTIONS



3.1 CONNECTIONS



1) The SELECT ENTRY should be mounted approximately 52 inches above finished floor to the center of the SELECT ENTRY. For handicapped entrances, the optional 36" or 48" handset may be ordered. For drive up applications SELECT ENTRY should be mounted approximately 48" above finished flooring to the center of SELECT ENTRY.

2) To surface mount the SELECT ENTRY, mount the back-box using the holes provided.

3) To flush mount the SELECT ENTRY, cut a hole the size of the back box (9 1/2" wide X 13 1/2" high) in the wall and mount the SELECT ENTRY in the hole.

LEAVE 1/2" FROM THE REAR OF THE DOOR TO THE WALL SO THE DOOR WILL OPEN.

4) The SELECT ENTRY is not designed for direct exposure to the elements, and care should be taken to insure that direct exposure to rain and snow does not occur. An optional weather hood may be purchased, if necessary.

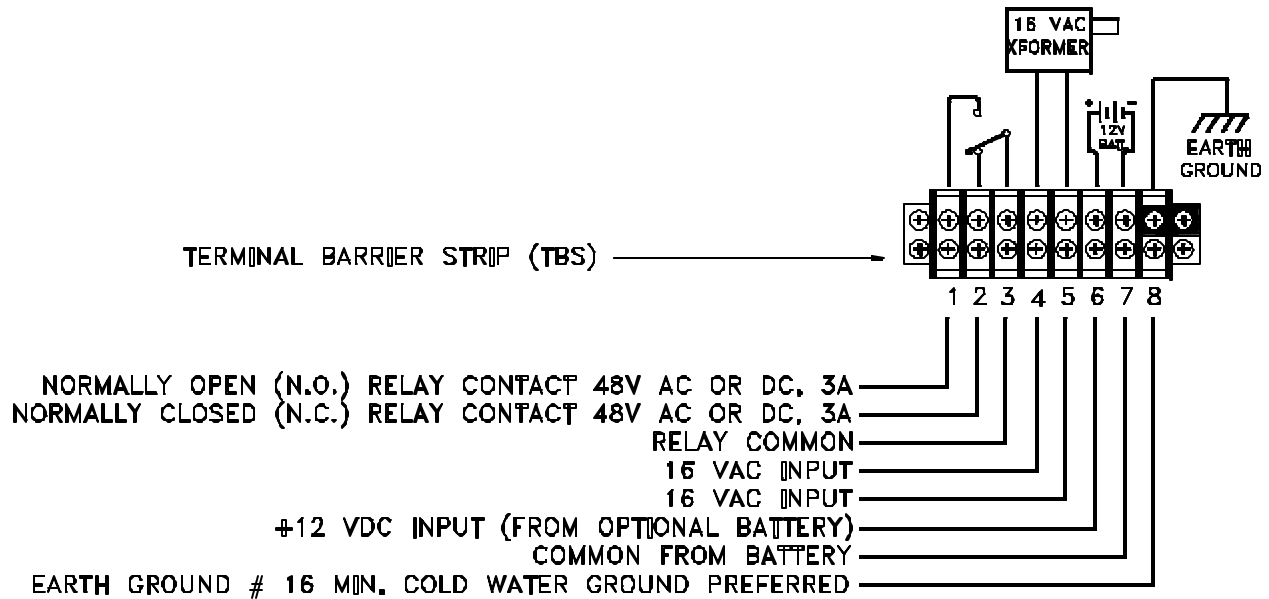
5) It should be noted that the SELECT ENTRY **MUST BE AT EARTH GROUND POTENTIAL**. Connect a #16 or larger wire from TBS-8 mounted on the back-box to a cold water pipe or other suitable ground. This wire should be less than 50 feet in length.

6) Connect the wires for the power connections to TBS-4 and TBS-5. Connect the other end of the wires to the screws on the supplied transformer (16 vac 20 va).

7) If you are using the N.O. contacts on the relay, connect the wires from the controlled device to TBS-1 and TBS-3. To use the N.C. contacts, connect the wires to TBS-2 and TBS-3.

NOTE: THE RELAY CONTACTS ARE RATED FOR 24 VOLTS AC OR DC AT 3 AMPS

STANDARD HANDSET



If OPTION 2R is installed, connect your wires for the N.O. contacts to J3-2 and J3-3. To use the N.C. contacts, connect the wires to J3-1 and J3-2. J3 is located at the bottom of the p.c. board.

8) Connect the modular plug for the telephone line to the jack provided by the phone company. No other equipment should be on this line. If attaching multiple SELECT ENTRYs to a single phone line, the optional MUI (Multiple Unit Interface) may be purchased.

9) This completes the installation.

3.2 FINAL ADJUSTMENTS

1) An adjustment required in the SELECT ENTRY is selecting the amount of relay ON time. This adjustment is the length of time the output relay is energized. If SELECT ENTRY has been ordered with the PIN, program the SELECT ENTRY with a 3 digit entry code (See pg. 11). Using the entry code, or by energizing the postal lock contacts, adjust the relay closed time by turning the potentiometer (R47) clockwise (longer time) or counter-clockwise (shorter time).

If OPTION 2R and the postal switch is installed, put S1-4 in the ON position. This will allow the postal lock input to energize the secondary relay. Adjust the relay closed time by turning the potentiometer (R56, the one on the left) clockwise (longer time) or counter-clockwise (shorter time).

3.3 PRELIMINARY TESTS

1) OUT DIAL, TONE GENERATOR AND TONE DECODER TEST

- a. Program a phone number (someone you know) in location 00.
SEE PROGRAMMING INSTRUCTIONS Pg. 10.
- b. Select the proper mode of dialing (PULSE or TOUCH TONE). Turn S1-2 (handset-enable) ON. SEE PAGE 9.
- c. Lift handset from the cradle. You will hear a DIAL TONE and the "IN USE" light will appear. Press numbers 00 and the SELECT ENTRY will out-dial the programmed phone number. You will hear the dialing of the phone number in the handset.
- d. Ask the other party to push a "6" on the phone. The SELECT ENTRY will hang up, the primary relay will energize, the "DOOR OPEN" light will appear, and the "IN USE" will go out. If the relay contacts are connected to a device, the device will activate. Replace the handset in the cradle.
- e. Recall 00 and ask the other party to press a "9" on the phone. The SELECT ENTRY will hang up. If OPTION 2R is installed, the secondary relay will activate and the "DOOR OPEN" light will appear.
- f. Hang up handset and **turn S1-2 OFF.**

2) SELECT ENTRY CODE TEST

- a. Program an ENTRY CODE; EXAMPLE 123. SEE PAGE 11.
- b. Leave handset in cradle and push SELECT ENTRY CODE 123. The relay will energize and the "DOOR OPEN" will light.

3) TESTING FROM ANOTHER TELEPHONE

- a. Make sure S1-2 and S1-3 are in the OFF position.
- b. From another phone, call this SELECT ENTRY. The CALLING phone will hear a ring, then a one second tone. While the phone is ringing, the "IN USE" will light. AFTER THE TONE enter the 7 digit password. If the password is correct, a two beep tone will be heard in the handset.
- c. Push a 6 on the calling phone. You will hear a single tone and the SELECT ENTRY will hang up.

STANDARD HANDSET

3.4 DIALING A PROGRAMMED TELEPHONE NUMBER

1) Observe the "IN USE" light on the front panel. If the light is on, wait until the light is extinguished.

2) Lift handset from cradle. You will hear the dial tone in the handset. Press the desired 2 digit number on the touch-pad. You have 10 seconds to press the 2 numbers. The earpiece will go silent while the SELECT ENTRY is dialing.

3) After the SELECT ENTRY finishes dialing, you will hear the phone ring. When the called party answers, start conversation. If phone is busy, hang up and try again later.

4) If entry is permitted, the called party will push the designated number on their telephone (TOUCH TONE 4,5,6, or 7, rotary pulse 6) to allow entry. When the designated number is pressed the SELECT ENTRY will disconnect and the "DOOR OPEN" light will appear. Hang up and enter.

3.5 ACCESSING AN SELECT ENTRY CODE

1) LEAVE THE HANDSET IN THE CRADLE. Press the desired 3 digit SELECT ENTRY CODE. You have 10 seconds to press all three digits of the code.

2) If the number is valid, the "DOOR OPEN" light will appear and the entrance will unlock.

3.6 POSTAL LOCK INPUT

The postal lock input provides a means of externally triggering the output control relay. A momentary connection between the inputs J2-6 and J2-7 will start the timer sequence. This input is always active. The postal lock is mounted on the four 6-32 posts behind the knock-out at the bottom of the SELECT ENTRY. Remove the knock-out to install the postal lock provided by the Postal Service.

3.7 CONTROL OF OUTPUT RELAY IF THE SELECT ENTRY ORIGINATES THE CALL

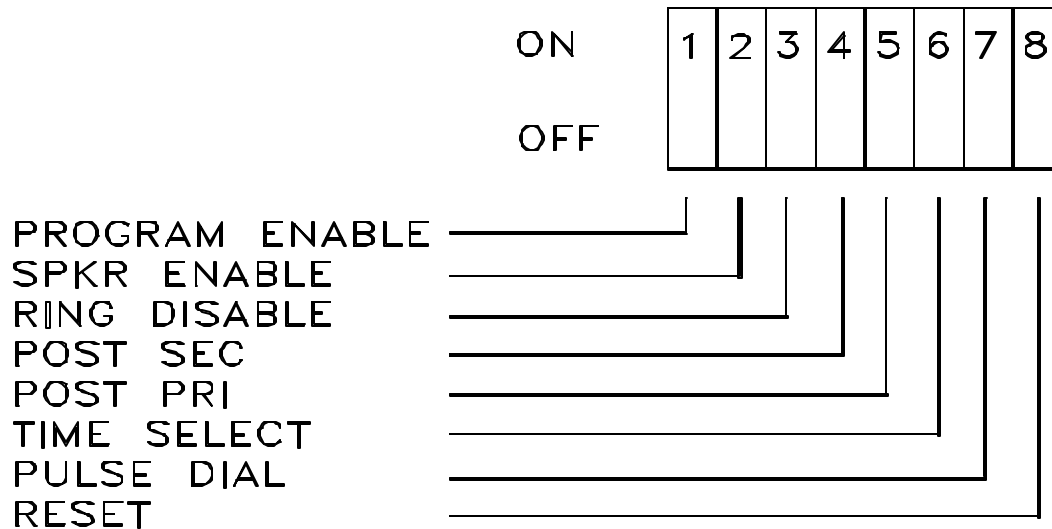
The SELECT ENTRY has a form "C" relay output. The ROTARY "6" decoding feature is valid only when the SELECT ENTRY originates the phone call. The SELECT ENTRY CODE will also access this relay.

1) When the SELECT ENTRY receives a TOUCH TONE "4,5,6 or 7" OR a ROTARY "6" the SELECT ENTRY will activate the output relay for an adjustable time of 3 to 45 seconds.

2) When the SELECT ENTRY receives a TOUCH TONE "9", the SELECT ENTRY will hang up with no change in the output relay. If option 2R is installed, the "9" will activate the secondary relay, then the SELECT ENTRY will hang up.

3.8 RECEIVED TOUCH-TONE SIGNAL:

- 1: Ignored
 2: Ignored
 3: Ignored
 4: Energize primary relay and hang up
 5: Energize primary relay and hang up
 6: Energize primary relay and hang up
 7: Energize primary relay and hang up
 8: Ignored
 9: Hang up IF OPTION 2R IS INSTALLED A 9 WILL ENERGIZE THE SECONDARY RELAY AND HANG UP.
 0: Ignored
 *: Ignored
 #: Ignored



1) The SELECT ENTRY comes with 1 minute time-out enabled. If 4 minute time-out is desired, turn S1-6 ON.

2) The SELECT ENTRY comes with TOUCH TONE out-dial selected. If pulse (rotary) dial is desired turn S1-7 ON.

3) The SELECT ENTRY comes with RING detect enabled. If RING detect is not desired, turn S1-3 ON.

4) Turn S1-5 on to allow the postal lock input to access the primary output relay.

5) If OPTION 2R is installed and the postal lock input is to access the secondary relay, turn S1-4 ON.

STANDARD HANDSET

3.9 SPECIAL SWITCH FUNCTIONS

1) To restart the microcomputer from a power-on start-up like state, turn S1-8 on for 1 second then turn off. This is RESET for the microcomputer.

2) If the PASSWORD is lost and you cannot enter the program mode, remove the handset from the cradle and let it hang. Turn on S1-1 for 1 second then turn it off. This allows access to the program mode and access to the password programming sequence.

3) Test switch S1-2 will turn on the handset so dialing out TOUCH-TONES (or rotary pulses depending on the setting of S1-7) will be heard in the handset. THIS SWITCH IS FOR TEST FUNCTIONS ONLY.

3.10 S1 SWITCH SELECTION DESCRIPTIONS

PROGEN S1-1:	ON momentary will allow access to program mode OFF normal operation.
HANDEN S1-2:	ON turns on handset always for test OFF normal operation.
RINGIN S1-3:	ON disables the ring detect circuit. OFF normal operation.
POSTSEC S1-4:	ON enables postal lock input for secondary relay. OFF disables postal lock input. OPTION 2R.
POSTPRI S1-5:	ON enables postal lock input for output relay. OFF disables postal lock input.
TIMSEL S1-6:	ON selects 4 minute talk time limit. OFF select 1 min talk time limit.
PDIAL S1-7:	ON SELECT ENTRY dials out PULSE dial. OFF SELECT ENTRY dials out TOUCH TONE.
RESET S1-8:	ON momentary will reset the microcomputer. OFF normal operation.

4.0 PROGRAMMING INSTRUCTIONS

SPECIAL KEYS

- "*" Program displayed numbers into memory
- "#" Clear display
- "*"+"0" SIMULTANEOUSLY, Enter password mode
- "*"+"# " " " Display password
- "0"+"# " " " Exit program mode

TO ENTER PROGRAM MODE

NOTE: THE PHONE NUMBER TO BE PROGRAMMED MAY BE FROM 1-7 DIGITS.

- | | |
|--|--|
| A. Remove handset from cradle and let hang. | DISPLAY WILL SHOW |
| B. PUSH "*"+"0" simultaneously ----- | 1 |
| C. Enter password:
PUSH (777 7777) -----
(factory set) | After password is entered
..
If valid password has been entered
(if invalid password, display is blank) |

4.1 PROGRAMMING A PHONE NUMBER

- | | |
|--|---|
| D. Enter the desired 2 digit code
EXAMPLE 01 ----- | 0.1.
If no prior data has been entered |
| E. Enter new phone number
EXAMPLE 123 4567 ----- | 0.1.
1 2 3 4 5 6 7 |
| F. If a MISTAKE is made PUSH "#"
to clear data in the display and enter correct data.

PUSH "#" ----- | 0.1. |
| Reenter phone number

EXAMPLE 123 4567 ----- | 0.1.
1 2 3 4 5 6 7 |
| G. To store the phone number

Display will blink and show
PUSH "*" ----- | 0.1.
1 2 3 4 5 6 7 |
| H. If more entries are required
PUSH "#" then "#", go to step D. ----- | .. |
- TO EXIT: PUSH "0"+"#" SIMULTANEOUSLY and hang up**

STANDARD HANDSET

4.2 PROGRAMMING AN ENTRY CODE

PERFORM STEPS A-C (Pg. 10), TO ENTER PROGRAMMING MODE

- I. Place handset in cradle
- J. Enter the desired 3 digit code DISPLAY WILL SHOW
EXAMPLE 123 ----- 1.2.
3
- K. If a MISTAKE is made PUSH "#", then "#"
to clear data in the display and enter correct data.
- PUSH "#", then "#" ----- ..
Re-enter 3 digit code
EXAMPLE 123 ----- 1.2.
3
- L. To store the entry code Display will blink and show
PUSH "*" ----- 3
- M. If more entries are required
PUSH "#" then "#", go to step J. ----- ..

TO EXIT: PUSH "0"+"#" SIMULTANEOUSLY.

NOTE: THE FIRST 2 DIGITS OF A 3 DIGIT ENTRY CODE MAY BE USED ONLY ONCE. EXAMPLE: 123 YES, 124 NO, 125 NO.

4.3 MEMORY EXAMINATION

PERFORM STEPS A-C (Pg. 10), TO ENTER PROGRAMMING MODE

TO EXAMINE TELEPHONE NUMBERS, LEAVE HANDSET OUT OF CRADLE.
TO EXAMINE SELECT ENTRY CODES, PLACE HANDSET IN CRADLE.

- N. Enter 2 digit location number you wish to start from.
- EXAMPLE 14 ----- 1.4.
8 2 3 5 4 1 0
- O. Push 0 ----- 1.5.
8 2 3 5 4 1 1
- P. Repeat O as desired to look at next location.

TO EXIT: PUSH "0"+"#" SIMULTANEOUSLY and hang up

4.4 ERASING MEMORY

PERFORM STEPS A-C (Pg. 10), TO ENTER PROGRAMMING MODE

TO ERASE PHONE NUMBERS LEAVE HANDSET OUT OF CRADLE

TO ERASE ENTRY CODES REPLACE HANDSET INTO CRADLE

Q. Enter the 2 digit phone code
or
the 3 digit entry code

R. PUSH "#" then PUSH "*"

The phone number or the 3rd digit of the entry code is now blank

S. PUSH "#" and go to Q

TO EXIT: PUSH "0"+"#" SIMULTANEOUSLY and hang up.

4.5 PROGRAMMING PASSWORD

PERFORM STEPS A-C (Pg. 10), TO ENTER PROGRAMMING MODE

T. PUSH "*"+"#" SIMULTANEOUSLY ----- u. u.
7 7 7 7 7 7 7

U. Enter new password
EXAMPLE 987 6543 ----- u. u.
9 8 7 6 5 4 3

Display will blink and show

V. PUSH "*" to store new password ----- u. u.
9 8 7 6 5 4 3

TO EXIT: PUSH "0"+"#" SIMULTANEOUSLY and hang up

STANDARD HANDSET

4.6 PROGRAMMING LONG DISTANCE OR 10 DIGIT NUMBERS

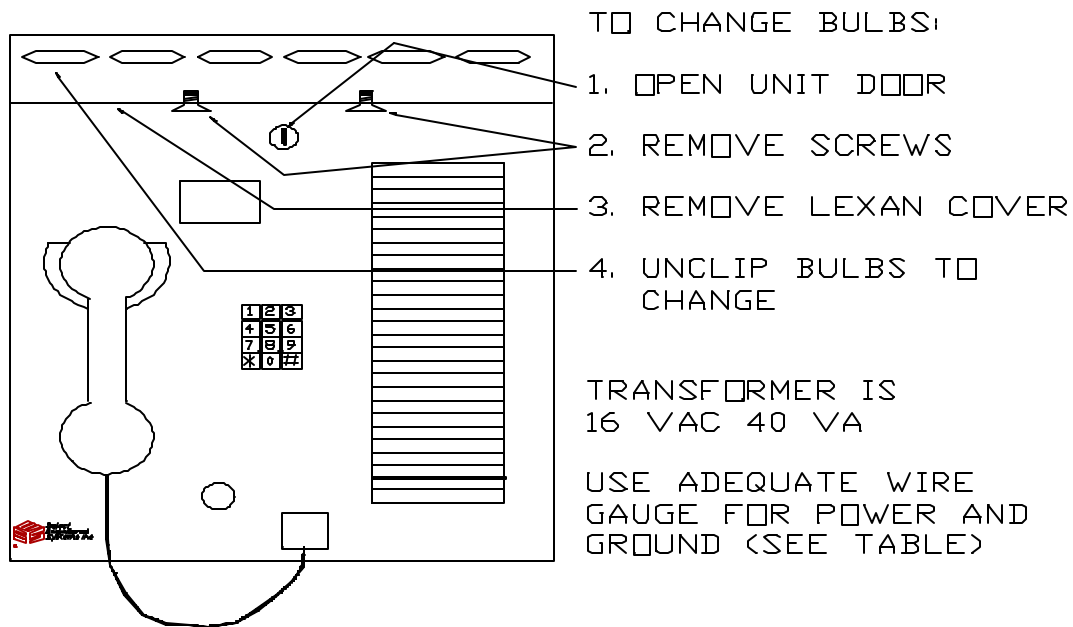
SELECT ENTRY is capable of programming long distance numbers when required. The following conditions apply:

1. The phone line to which SELECT ENTRY is connected must be capable of long distance and have no form of toll restriction.

PERFORM STEPS A-C (Pg. 10), TO ENTER PROGRAMMING MODE

	DISPLAY WILL SHOW
D. Enter the desired 2 digit code EXAMPLE 02 -----	0.2.
E. Enter first half of phone number (up to 7 digits) EXAMPLE 1 800 -----	0.2. 1 800
F. Push "*".	0.2 1 800
G. Push "0".	0.2
H. Enter second half of phone number (up to 7 digits) EXAMPLE 342 5737 -----	0.2. 342 5737
I. Push "*". Display will blink and show	0.2 342 5737

5.0 SELECT LITE



SELECT ENTRY units come in two styles, the standard TAC and the SELECT LITE. The electronics are the same for both systems. The SELECT LITE has a built-in directory and overhead lighting to permit viewing the directory at night. Because the bulbs in the overhead lighting consume more power than a standard SELECT ENTRY TAC, a larger transformer (16 VAC @ 40 VA) is supplied. Care should be taken to accommodate the increased power requirements with an increased wire gauge when installing SELECT LITE. There is circuitry that will not operate, if power is too low.

Recommended power is as shown:

16 ga.	up to 50 feet.
14 ga.	up to 100 feet.
12 ga.	up to 250 feet.
10 ga.	up to 500 feet.

For unusual distances or requirements please consult factory.

In order to maintain the lighting, refer to the above diagram for changing SELECT LITE bulbs. The bulbs used in SELECT LITE have been chosen to minimize power consumption, so it is recommended that replacements be purchased from SES. Bulbs purchased from national chain electronics stores will work in SELECT LITE, but they will also consume twice as much power, as well as generate more heat.

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BETTER TECHNOLOGY MAKES BETTER SYSTEMS

03/00



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