

# SAT DBRX

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## User/Installer Guide

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Select Entry Systems

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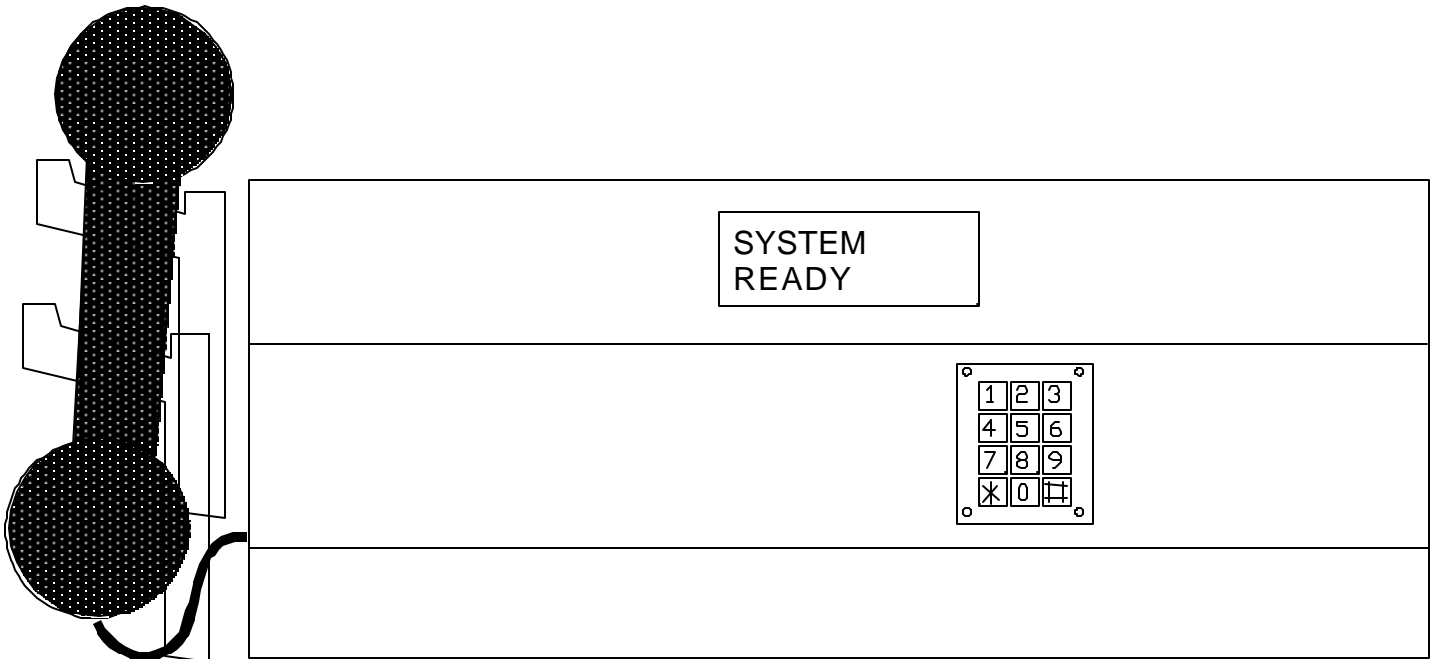
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**1.0 INTRODUCTION TO SAT DBRX**

The SAT DBRX is a microprocessor based proprietary receiving device that will allow monitoring up to 100 Self Identifying Automatic Telephones (SAT) manufactured by SES. It maintains a small database consisting of this data:

- ! Location at the site.
- ! Name of the facility.
- ! Phone number of the line the SAT uses.
- ! Address of the facility.
- ! City that the facility is located.
- ! State that the facility is located.
- ! 2 lines of 24 characters each for additional notes as required.

The SAT DBRX will dial out either pulse (rotary) or Touch-Tone<sup>™</sup> via programming selection. While the SAT DBRX is dialing, the speaker disconnects, keeping the dialed phone number confidential.



## 1.1 STANDARD FEATURES:

- ! Memory Capacity: 100 SAT ID. (Additional capacity available).
- ! Event Buffer 75 transaction minimum (Additional buffering capacity available).
- ! Wrapping buffer.
- ! Printer capability (RS232 port) or Current Loop to printer  
(Baud rates to printer and/or remote terminal (CRT)) 300, 600, 1200, 2400, 4800, 9600.
- ! Clock & Calendar.
- ! 1 to 4 digit SAT ID.
- ! SAT DBRX dials out either Touch-Tone<sup>®</sup> or rotary - field programmable.
- ! SAT DBRX will mute tones in receiver during dialing.
- ! SAT DBRX will not accept Touch-Tone<sup>®</sup> signals through the microphone.
- ! Two line 24 digit per line LCD display, scrollable up to 9 lines.
- ! Non-volatile memory.

## 1.2 SPECIAL FEATURES

- ! Keypad active 5 seconds after SAT DBRX calls out.
- ! Crystal controlled tone detection for short burst 50 MS tone.
- ! Optional IBM keyboard programming.
- ! Standby batteries.

The (Optional) 12 volt DC .7 A/hr internal battery (B12V) will operate the SAT DBRX for a minimum of 1 hour with no AC power applied. The battery is NOT required for memory storage. The SAT DBRX is supplied with a 16 vac transformer that will operate the SAT DBRX and recharge the optional internal battery.

**DO NOT CONNECT ANY OTHER DEVICES TO THE BATTERY.**

## 1.3 ENVIRONMENTAL CONSIDERATIONS

**Indoor or Outdoor:** The standard SAT DBRX housing is suitable for indoor installations only.

**Dimensions:** SAT DBRX largest outside dimensions are 16" W X 5" H X 12" D.

**1.4 ELECTRICAL**

**Power:** The SAT DBRX 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 choose to provide their own 12 volt 300 ma. DC supply. **HOWEVER, AC TRANSFORMER AND DC SUPPLY CAN NOT BE USED AT THE SAME TIME.**

**Ground:** The SAT DBRX 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 SAT DBRX is diminished if adequate earth ground is not provided.

**1.5 TECHNICAL DATA**

**! POWER INPUT:** 16 VAC 15 VA UL LISTED TRANSFORMER (PROVIDED WITH UNIT).

**! EMERGENCY BATTERY:** 12V .7 AHR GEL CELL ON CONSTANT CHARGE (OPTIONAL).

**! TELEPHONE LINE:** VOICE GRADE RJ11C JACK.

**! SHIPPING WEIGHT:** APPROXIMATELY 10 LBS.

**! CONSTRUCTION:** FRONT PANEL: ALUMINUM  
BACK BOX: ALUMINUM.

**! OPERATING ENVIRONMENT:** TEMPERATURE: -20E F TO +140E F.  
RELATIVE HUMIDITY: 5% - 95% NON-CONDENSING.

**! MOUNTING:** DESK.

**! MEMORY TYPE:** NON-VOLATILE.

**! TONE DETECTION:** CRYSTAL CONTROLLED, CAN DETECT SHORT BURST 50 MS TONE.

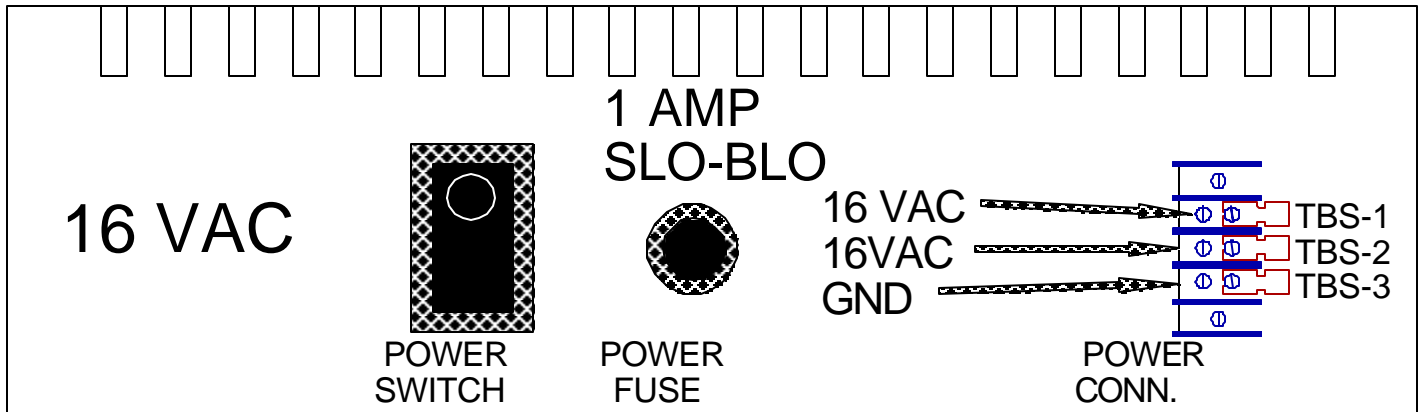
## 2.0 INSTALLATION INSTRUCTIONS

### **NOTE THE FOLLOWING BEFORE ATTEMPTING ANY INSTALLATION:**

- A. Never install telephone wiring during a lightning storm.
- B. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- C. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- D. Use caution when installing or modifying telephone lines.
- E. Installation of SAT DBRX requires co-ordination with your telephone company. It is recommended that a Touch-Tone<sup>®</sup> line be installed to allow much faster dialing. If a Touch-Tone<sup>®</sup> line is not available, the SAT DBRX can be reprogrammed to dial out pulse (rotary) signals.
- F. The phone company may require the following information:
  - The ringer equivalence number.
  - The FCC registration number.These numbers are indicated on the label on the back of the SAT DBRX.  
The desired location of the telephone jack must be given to the phone company at the time the phone line is ordered.
- G. Actual installation of the SAT DBRX involves:
  - 1) Grounding the SAT DBRX to earth ground from the terminal on the SAT DBRX.
  - 2) Wiring the supplied transformer to the terminal strip on the back of the SAT DBRX and plugging it into a 110 vac outlet.
  - 3) Connecting the supplied phone line into the RJ-11C jack provided by the phone company.
  - 4) Connecting the optional IBM PC or XT compatible keyboard. (See Pg. 24)
  - 5) Connecting an RS-232 serial device such as a printer or terminal to the DB-25 connector on the back of the SAT DBRX. (See Pg. 21).



2.1 CONNECTING GROUND AND POWER



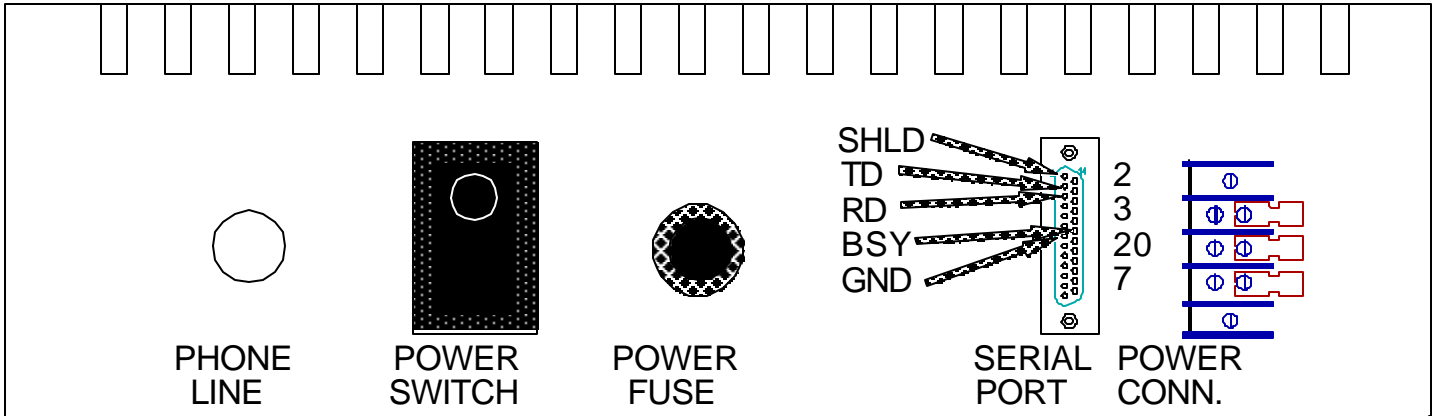
- 1) Connect a 16 gauge wire from the ground terminal (TBS-3) of the terminal barrier strip as shown above to a good earth ground. Do this before connecting anything else to the SAT DBRX.
- 2) Connect the wires for the power connections to TBS-1 and TBS-2, as shown. Connect the other ends of the wires to the screws on the supplied transformer (16 vac 15 va). Determine the gauge size from the table below.

Recommended wire gauge is as shown:

16 ga.	up to 50 feet.
14 ga.	up to 100 feet.
12 ga.	up to 200 feet.
10 ga.	up to 300 feet.
8 ga.	up to 500 feet.

In the event of a voltage surge or other electrical transient, the fuse may need to be replaced. Replace with a 1 AMP slo-blo fuse only.

2.2 CONNECTING TO SERIAL PORT



The serial port on the back of the SAT DBRX is an RS-232 serial communications port. It is configured to operate at 8 bits with 1 stop bit and no parity at baud rates from 300 to 9600 baud. It may be connected to serial printers, CRT terminals, Personal Computers, or any other device that permits serial communications. Maximum distance for any cable connected to this port is 100 feet. Baud rates may have to be slower for longer runs depending on the characteristics of the cable used. Belden # 9940 is recommended for best operation.

**NOTE: THE 5 PIN DIN CONNECTOR ADJACENT TO THE DB-25 CONNECTOR IS NOT A SERIAL PORT. DO NOT CONNECT DIN CONNECTOR SERIAL DEVICES TO THIS PORT.**

Since the most common use for this serial port is for a logging printer, the pinouts are designed to permit pin for pin connection for serial printers. A DB-25M male plug to DB-25M male plug on a ribbon cable will be sufficient in most installations. This should be readily available from computer equipment supply houses.

For communication devices, such as terminals, a null modem connection (pin 2 to pin 3 and pin 3 to pin 2) will be required.

### **3.0 INITIALIZATION AND PROGRAMMING**

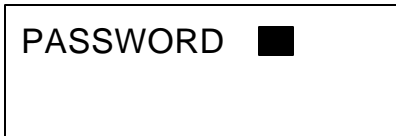
Initialization refers to configuration of a SAT DBRX. This is done during installation. These tasks are generally performed by the installer of the SAT DBRX.

Programming refers to the entry of locations, names, phone numbers, city, state, and additional information. This data is generally entered by the end user or customer, and is updated periodically as required.

### **3.1 INITIALIZATION**

When the SAT DBRX is first powered on, the message "SYSTEM READY " will appear in the LCD display.

To begin programming press the "✕" and the "0" keys simultaneously.



««««« This shows on display window.

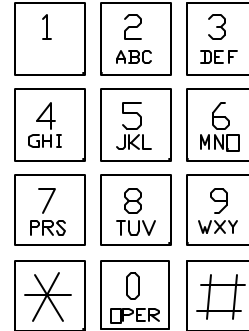


After you see this in the window, you have six seconds to start to press the six digit password. The factory default password is 777777. Each time a key is pressed, a "✕" will appear in the window to keep the password confidential. After the sixth key is entered, press the "✕" key. This should bring you to the main menu. If no key is pressed in the first 6 seconds, the SAT DBRX automatically reverts to operational mode. If during programming no key is pressed for 60 seconds, the SAT DBRX automatically reverts to operational mode.

MAIN MENU SELECT 1 - 4 ■
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The choices for the main menu are:

1. SAT INFORMATION
2. SYSTEM PARAMETERS
3. COMMUNICATIONS SETUP
4. BUFFER INFORMATION



The four choices above may have from 1 to 9 additional choices in a particular category (depending on what is attached to the SAT DBRX). When a menu selection is made, pressing a "\*" will return to the main menu.

The black box represents the cursor, an indicator of where the next character is expected. In the remaining examples of this manual, there are text examples where the cursor is assumed. The keypad will not be shown for remaining examples, key inputs will be referred to directly in the text.

The "#" key has different functions when in different sub-menus or different programming modes. In general, the "#" key will advance the cursor one space to the right. Most functions require the "#" key to shift a character to the right to make a selection or function valid.

The "\*" key acts similar to a <CR> or carriage return key or the enter key on a typewriter or a personal computer. In this manual, if you are using a terminal or keyboard to program SAT DBRX, press the <CR> or 7) - (carriage return) key whenever the text prompts you for a "\*".

The "\*" and "0" pressed simultaneously act similar to the "ESC" key on a computer. In this manual, if you are using a terminal or keyboard to program SAT DBRX, press the "ESC" key whenever the text prompts you for a "\*" and "0".

The "#" and "0" pressed simultaneously act similar to the backspace key on a computer. In this manual, if you are using a terminal or keyboard to program SAT DBRX, press the back arrow (7) key whenever the text prompts you for a "#" and "0".

On the following page is an overview of the menu selections possible on a SAT DBRX.

4.0 PROGRAMMING CHOICES

NOTE: ( ) REFERS TO SECTION IN MANUAL DESCRIBING FUNCTION  
MAIN MENU SECTION

**1 = SAT INFORMATION** (4.1)

- 1 = ADD / EDIT SAT INFO (4.1.1)
- 2 = FIND LOCATION (4.1.2)
- 3 = SATS USED (4.1.3)
- 4 = PRINT SAT ID (4.1.4)
- 5 = PRINT LOCATIONS (4.1.5)
- 6 = PRINT ALL ID RECORDS (4.1.6)
- 7 = PRINT ALL LOCATION RECORDS (4.1.7)
- 8 = SHOW ALL SATS (4.1.8)
- 9 = SHOW ALL LOCATIONS (4.1.9)

KEYBOARDS  
KEYBOARDS  
KEYBOARDS  
KEYBOARDS  
CRT ONLY  
CRT ONLY

**2 = SYSTEM PARAMETERS** (4.2)

- 1 = SET CLOCK (4.2.1)
- 2 = SAT ID LENGTH (4.2.2)
- 3 = TONE DIAL (4.2.3)

RANGE RANGE FACTORY DEFAULT  
1-4 4  
0-1 1

**3 = COMMUNICATIONS SETUP** (4.3)

- 1 = TERMINAL TYPE (4.3.1)
- 2 = RS232 BAUD (4.3.2)
- 3 = PROGRAM PASSWORD (4.3.3)
- 4 = PRINT ALL DATA (4.3.4)
- 5 = PRINT INFORMATION (4.3.5)

0-1 1  
0-5 5  
777777  
0-1 0

**4 = BUFFER INFORMATION** (4.4)

- 1 = VIEW LOG (4.4.1)
- 2 = SEND LOG (4.4.2)
- 3 = FIND SAT ID (4.4.3)
- 4 = LOG BUFFER SIZE (4.4.4)
- 5 = CLEAR LOG BUFFER (4.4.5)

## 4.1 SAT INFORMATION

**SAT INFORMATION  
SELECT 1 - 7**

Pressing "1" (after entering the password) will show the choice at left.

In this menu selection you may:

- A. Add or edit SAT information.
- B. Find a location.
- C. Show the number of SATs used.
- D. Print all ID records.
- E. Print all location records.
- F. Show all SATs.

### 4.1.1 ADD / EDIT SAT INFORMATION

**SAT ID =**

Press "1" on the SAT INFORMATION menu. You will be prompted for the SAT ID as shown at left:

If a mistake is made while keying in the SAT ID, press the "0" and the "#" simultaneously to move back one space. From a terminal or keyboard, press the back arrow key.

Enter the SAT ID. It will be between one and four digits depending on the system parameters (see section 4.2 Pg. 16).

After the desired SAT ID has been keyed in, press the "X". From a terminal or keyboard, press the "Enter" or 7) - key.

#### 4.1.1 A DELETING A SAT ID

To delete a SAT ID, key in the ID number then press "#" followed by "X". This also will erase all data associated with that ID number, such as the location, name, phone number, address, city and notes. From a terminal or keyboard, press the "DEL" (delete key) followed by the "Enter" or 7) - key.

#### 4.1.1 B DELETING A FIELD

To delete a part of a SAT ID record, such as a phone number, location or city, go to that field by pressing the "X" key. When the desired field has been reached, key in "0", then "X" from the keypad. This will delete the data in that field, but not any of the other fields associated with the SAT ID record. From a terminal or keyboard, press the "Enter" or 7) - key until the desired field has been reached. Key in "0", and then the "Enter" or 7) - key.

**NOTE: IF YOU PLACE A "0" IN THE FIRST POSITION OF A LOCATION, IT WILL DELETE ALL DATA ASSOCIATED WITH THAT SAT ID.**

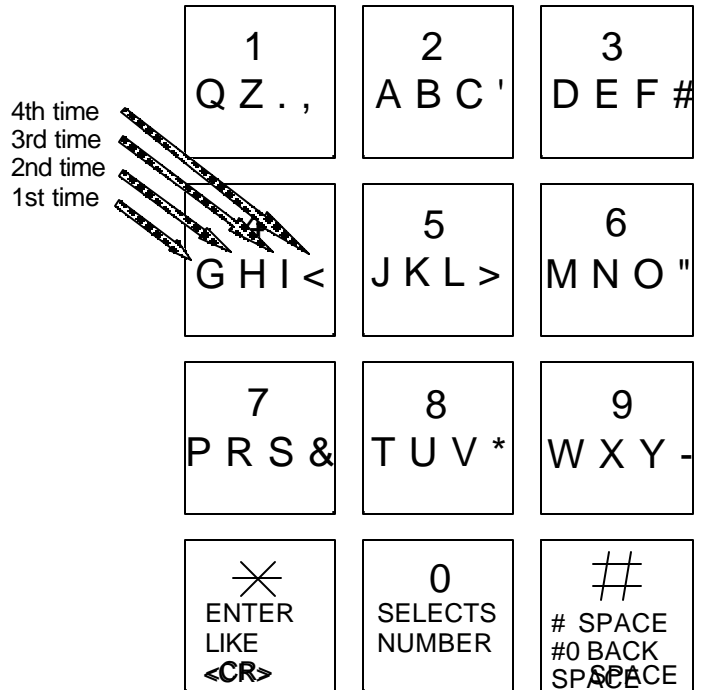
4.1.1.1 LOCATION

**FOR CHARACTERS:**

You will be prompted to enter a location. A location refers to where in a specific facility the SAT is located. The location field is 1 to 24 characters, including punctuation. The keys on the keypad are alphanumeric. Since there are only 12 keys, each key generates it's number, more than one letter, and punctuation.

**LOCATION =**

Each time a key is pressed, the first character corresponding to that key will appear in the display. To get to the second character, press the same key a second time. To get to the third character press the same key a third time. To skip a space, press the "#" key. To backspace, press the "0" and the "#" simultaneously. A backspace over an existing character will delete that character. **If you inadvertently key past the desired character, keep pressing the key until the desired character is in the window.** Then press the "#" key to advance to the next space.



**FOR NUMBERS:**

To select numbers, press the "0" key and then the desired number key.

When the location is completely entered, press the "✖" key to enter the name into memory.

**NOTE: PRESS THE # KEY TO MOVE PAST THE LAST LETTER BEFORE PRESSING , OR LAST LETTER IS NOT PROGRAMMED.**

4.1.1.2 NAMES

You will be prompted to enter a name. Name refers to the facility where the SAT is located. Name fields are 1 to 24 characters, including punctuation.

**NAME =**

**4.1.1.3 PHONE NUMBER****PHONE # =**

You will be prompted for the phone number. Enter the numbers normally. In this mode, letters are not possible. If one of the digits of the phone number is miskeyed, press the "0" and the "#" simultaneously to backspace and correct the digit. When the phone number is completely entered, press the "✖" key to enter the phone number into memory. To create a 3 second pause, press the "#" key. For phone systems that dial an 8 or a 9 to get an outside line, key in the number then the "#", then the phone number, then "✖". From a keyboard or terminal, press the ":" key to generate a 3 second pause.

**4.1.1.4 ADDRESS****ADDRESS =**

You will be prompted to enter an address. This is a 24 character field. When the address is completely entered, press the "✖" key to enter the address into memory.

**4.1.1.5 CITY****CITY =**

Another selection in this sub-menu is the city. This is a 24 character field. Enter this data into memory. If mistakes are made while keying in the number, press the "0" and the "#" key pressed simultaneously. From a terminal or keyboard press the back arrow. This will backspace over the miskeyed character. When the city is completely entered, press the "✖" key to enter the city data into memory.

**4.1.1.6 STATE****STATE =**

Another selection in this sub-menu is the state. This is a 2 character field. Enter this data into memory. If mistakes are made while keying in the number, press the "0" and the "#" key pressed simultaneously. From a terminal or keyboard press the back arrow. This will backspace over the miskeyed character. When the city is completely entered, press the "✖" key to enter the state into memory.

**4.1.1.7 NOTE LINE 1****NOTE L1 =**

The next selection in this sub-menu is Note Line 1. This is a 24 character field. This field and the next one (Note line 2) allow for any additional information or instructions to be associated with this SAT ID. When Note line 1 data is completely entered, press the "✖" key to enter the first note line into memory.



**4.1.1.8 NOTE LINE 2**

The next selection in this sub-menu is Note Line 2. This is also a 24 character field. This field is a continuation of Notes, for additional data that could not be covered in 24 characters from Line 1. When Note line 2 data is completely entered, press the "\*" key to enter the second note line into memory.

**NOTE L2 =**

**4.1.2 FIND LOCATION**

To select the find location function, press "2" from the SAT Information menu. You will be prompted for 1 - 6 characters. Select characters in the same manner that names are programmed into memory (See the diagram on Pg. 11). When all desired characters are entered, press "#", then "\*".

**1-6 CHAR. <CR>**

This message will display whatever SAT ID number matches the letters selected. If there is more than one location with similar letters, pressing the "\*" key will display additional locations that meet the selection criteria.

**SAT ID = XXXX  
<\*> TO CONTINUE**

If no match is made, you will be prompted to press either the "\*" (like a <CR>) or the "0" and "#" simultaneously (like an ESC). A <CR> or "\*" will return to sub-menu 1 (See section 4.1.1 ADD/EDIT SAT INFORMATION). A <ESC> or "\*" and "0" pressed simultaneously will return the SAT DBRX to normal operation.

**NO MATCH  
\* TO CONTINUE**

**4.1.3 SATS USED**

To find the number of SATs used, press "3" from the SAT INFORMATION menu. The number of SATs currently programmed into the system will display as shown at right.

**SATS USED XXXX**

#### 4.1.4 PRINT SAT ID

**PRINTING  
BUSY PLEASE WAIT**

This selection will print SAT ID numbers sorted by ID numbers in ascending order. This information is sent to the printer port. Select this sub-menu from the SAT INFORMATION menu by pressing "4". This choice is available only from the keypad on the console or from the optional IBM keyboard. While the SAT DBRX is printing it will briefly display the "Busy" message shown at left on the LCD display.

**<\*> TO CONTINUE**

After displaying the busy message, the display will prompt you for a carriage return or an escape sequence. Press "⌘" for a carriage return to the SAT INFORMATION menu.

#### 4.1.5 PRINT LOCATIONS

**PRINTING  
BUSY PLEASE WAIT**

This selection will print locations sorted alphabetically in ascending order. This information is sent to the printer port. Select this sub-menu from the SAT INFORMATION menu by pressing "5". This choice is available only from the keypad on the console or from the optional IBM keyboard. While the SAT DBRX is printing it will briefly display the "Busy" message shown at left.

**<\*> TO CONTINUE**

After displaying the busy message, the display will prompt you for a carriage return or an escape sequence. Press "⌘" for a carriage return to the SAT INFORMATION menu.

#### 4.1.6 PRINT ALL ID RECORDS

**PRINTING  
BUSY PLEASE WAIT**

This selection will print ID records sorted numerically in ascending order. This information is sent to the printer port. Select this sub-menu from the SAT INFORMATION menu by pressing "6". This choice is available only from the keypad on the console or from the optional IBM keyboard. While the SAT DBRX is printing it will briefly display the "Busy" message shown at left.

After displaying the busy message, the display will prompt you for a carriage return or an escape sequence. Press "⌘" for a carriage return to the SAT INFORMATION menu.

**<\*> TO CONTINUE**

#### **4.1.7 PRINT ALL LOCATION RECORDS**

This selection will print all location records sorted alphabetically in ascending order. This information is sent to the printer port. Select this sub-menu from the SAT INFORMATION menu by pressing "7". This choice is available only from the keypad on the console or from the optional IBM keyboard. While the SAT DBRX is printing it will briefly display the "Busy" message shown at right.

**PRINTING  
BUSY PLEASE WAIT**

After displaying the busy message, the display will prompt you for a carriage return or an escape sequence. Press "⌘" for a carriage return to the SAT INFORMATION menu.

**<\*> TO CONTINUE**

#### **4.1.8 SHOW ALL SATS**

This menu selection only appears when a CRT is attached to the SAT DBRX. (To attach a CRT Terminal or Personal Computer see section (5.2 & 5.3). Select this sub-menu from the SAT INFORMATION menu by pressing "8". This selection will list SAT IDs and all data associated with SAT IDs, sorted in ascending order.

#### **4.1.9 SHOW ALL LOCATIONS**

This menu selection only appears when a CRT is attached to the SAT DBRX. (To attach a CRT Terminal or Personal Computer see sections (5.2 & 5.3). Select this sub-menu from the SAT INFORMATION menu by pressing "9". This selection will list locations and all data associated with locations, sorted by location in ascending order.

## 4.2 SYSTEM PARAMETERS

### 4.2.1 SET CLOCK / CALENDAR

**SYSTEM PARAMETERS  
SELECT 1 - 3**

To set the clock/calendar, enter programming mode.  
Select "2" from the main menu selection.

**NOTE: ONCE TIME/DATE PROGRAMMING HAS BEGUN, ALL SELECTIONS  
MUST BE COMPLETED FOR CHANGES TO TAKE EFFECT.**

**00:00 00/00/00  
MIN.:**

Select "1" to set the time & date.  
You will be prompted to enter the current time in minutes as a one or two digit number. If you make a mistake, press "0" and "#" simultaneously to backspace one character. After the minutes are entered, press the "✕" key.

**00:00 00/00/00  
HOUR:**

Enter a 1 or 2 digit number to set the hour. If you make a mistake, press "0" and "#" simultaneously to backspace one character. After the hour is entered, press the "✕" key.

**00:00 00/00/00  
DAY, 1..7:**

Enter a number corresponding to the day of the week. Sunday is "1", Saturday is "7", and so forth. If you make a mistake, press "0" and "#" simultaneously to backspace one character. After the day of the week is entered, press the "✕" key.

**00:00 00/00/00  
DATE:**

Enter a 1 or 2 digit number to set the day of the month. If you make a mistake, press "0" and "#" simultaneously to backspace one character. After the day is entered, press the "✕" key.

Enter a 1 or 2 digit number to set the month. If you make a mistake, press "0" and "#" simultaneously to backspace one character. After the month is entered, press the "✕" key.

**00:00 00/00/00  
MONTH:**

Enter a 2 digit number to set the year. If you make a mistake, press "0" and "#" simultaneously to backspace one character. After the year is entered, press the "✕" key.

You will be returned to the Systems Parameters menu.

**00:00 00/00/00  
YEAR:**

#### **4.2.2 SAT ID LENGTH**

The ID length of the SAT may be from 1 to 4 digits. Set the length by selecting "2" from the System Parameters menu. You will be prompted for a number from 1 - 4. After the length is selected, press the "✕" key.

You will be returned to the Systems Parameters menu.

**SAT ID LENGTH <1-4> =**

**NOTE: ONCE SAT LENGTH HAS BEEN CHANGED, THE BUFFER MUST BE CLEARED IN ORDER TO SEARCH FOR ID.**

#### **4.2.3 TONE DIAL**

Tone dial selects whether the SAT DBRX dials out with Touch-Tones<sup>®</sup>, or uses pulses, like rotary dial phones. In areas of the country where Touch-Tone<sup>®</sup> is not available, tone dial may be disabled. To disable the Tone Dial from the factory default of 1, press "3" from the System Parameters menu to get this sub-menu. Press "0" to disable Tone Dial, and press "✕". This will return you to the System Parameters menu.

**TONE DIAL <0-1> =**

### 4.3 COMMUNICATIONS SETUP

#### 4.3.1 TERMINAL TYPE

**TERMINAL TYPE <0-1> =**

The SAT DBRX is designed to respond to terminals that follow VT-100B terminal control codes. It also can respond to "dumb terminal" codes. To disable the Terminal Type from the factory default of 1, press "1" from the Communications Setup menu to get this sub-menu. Press "0" to disable VT-100B emulation, and press "✖". This will return you to the Communications Setup menu.

#### 4.3.2 RS232 BAUD

**RS232 BAUD <0-5> = 5**

The RS232 Baud refers to the rate of speed for serial communications, such as a printer or terminal would need. The different rates are:

0 =	300	BAUD
1 =	600	BAUD
2 =	1200	BAUD
3 =	2400	BAUD
4 =	4800	BAUD
5 =	9600	BAUD

To change the RS232 Baud from the factory default of 5, press "2" from the Communications Setup menu to get this sub-menu. Next, select the number corresponding to the desired baud, and press "✖". This will return you to the Communications Setup menu.

#### 4.3.3 PROGRAM PASSWORD

**PROGRAM PASSWORD =  
777777**

The Password leaves the factory with a default password of 777777. The Password may be alphanumeric (1 - 6 characters) if programmed from an optional terminal or the optional keyboard (SVPCKYBD). From the front keypad, only numbers (1 - 6 digits) are supported. This provides an additional level of security if you connect a terminal to a SAT DBRX. It is possible to create passwords that can not be accessed from the front keypad. To change the Program Password from the factory default of 777777, press "3" from the Communications Setup menu to get this sub-menu. Key in the desired 6 digits for the new password, and press "✖". You will be returned to the Communications Setup menu.

**4.3.4 PRINT ALL DATA**

When this function is disabled (0) the SAT DBRX will print only the SAT ID when it receives a call from a SAT. When it is enabled (1) it will print all data in the record associated with the SAT ID number. To change from the factory default of disabled to enabled, select "4" from the Communications setup menu. Press "1" and press "✘". You will be returned to the Communications Setup menu.

**PRINT ALL DATA <0-1> =**

**4.3.5 PRINT INFORMATION**

Press "5" from the Communications Setup menu to send the SAT DBRX configuration data to the serial port. When completed, press "✘". You will be returned to the Communications Setup menu.

**<\*> TO CONTINUE**

**4.4 TRANSACTION BUFFER INFORMATION**

The transaction buffer stores any event that would normally create a logging printer message. The size of the transaction buffer depends on the capacity of the SAT DBRX. Usually, the smaller the capacity the larger the transaction buffer space.

After a transaction buffer becomes full, it begins to overwrite the oldest event in the transaction buffer storage space.

Press "4" from the main menu to get the selection shown at right.

Press "✘" to return to the Main menu.

**BUFFER INFORMATION  
SELECT 1 - 5**

**4.4.1 VIEW LOG**

This allows the log to be viewed from a terminal connected to the optional serial port. Pressing "1" from the front panel keypad will only show a cursor box in the LCD display as shown at right. The SAT DBRX will sound a long error tone (♩) and return to the Buffer Information menu.

\$

## 4.4.2 SEND LOG

**PRINTING  
BUSY PLEASE WAIT**

Pressing "2" will send all logging data to serial port. A message like the one at left will display.

**<\*> TO CONTINUE**

After all data stored in the buffer has been sent, the message shown at left will display. Press "✕" to return to the Buffer Information menu. Press "✕" again, to return to the Main menu.

## 4.4.3 FIND SAT ID

\$

Pressing "3" from the front panel keypad will only show a cursor box in the LCD display as shown at left. The SAT DBRX will sound a long error tone (🔊) and return to the Buffer Information menu. This function is designed to transmit all transactions for a given ID to a terminal or printer.

## 4.4.4 LOG SIZE

**LOG BUFFER SIZE =XXXX  
LOG BUFF FREE =XXXX**

Press "4" to see the size of the buffer for your particular SAT DBRX. This will vary, depending on capacity and options. The upper number as shown at left is the total number of transactions before overwriting the first transaction. The lower number is the number of transactions remaining before over writing the buffer occurs.

Subtracting the lower number from the upper number shows how many transactions have occurred. Depending on the amount of activity on your system, and the memory capacity of your SAT DBRX, you may wish to purchase additional buffer capacity.

## 4.4.5 CLEAR BUFFER

**DESTROYS REC  
CONTINUE 1/0**

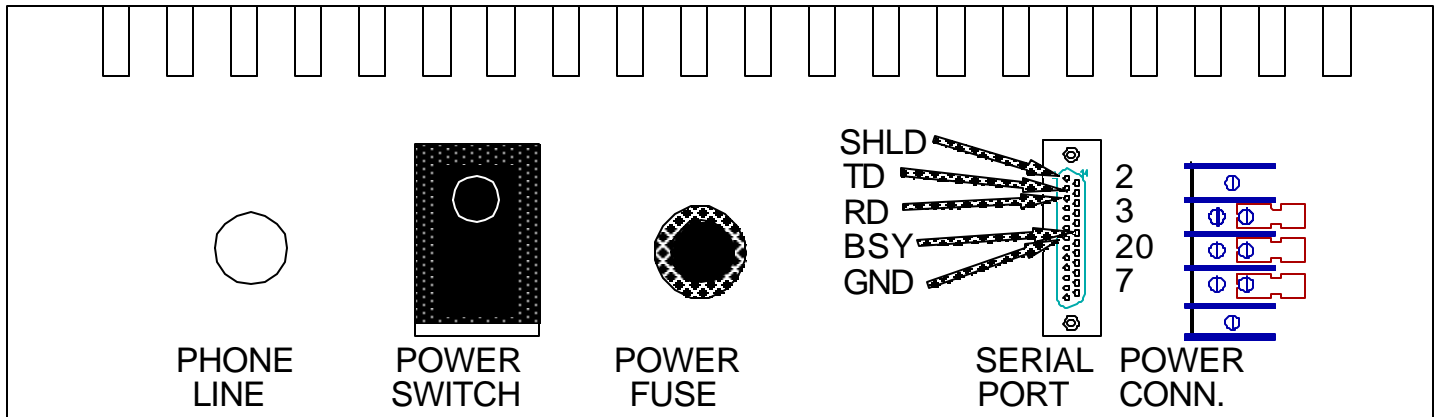
Press "5" to get to the menu at left. Pressing a "1" then "✕" clears all transactions stored in the buffer for the SAT DBRX. If you press a "1" by mistake, press "#" and "0" simultaneously to backspace over the "1". Press "0" then "✕" to return to the main menu. If you press any key other than "1" or "0", the SAT DBRX will sound a long error tone (🔊). Press "✕" to return to the Buffer Information menu. Press "✕" again, to return

to the Main menu.



5.0 SERIAL PORT

5.1 PRINTER



The RS232 serial port on the back panel may be used to send information from the SAT DBRX to a serial printer. Information may be transmitted to the printer at rates from 300 baud to 9600 baud. Baud rate may be selected from the communications setup menu (see Section 4.3.2). The only connections required for a printer are: SHLD (shield, pin 1) RX (Received Data, pin 3), GROUND (pin 7), and Busy (DTR pin 20). Maximum distance for any cable connected to this port is 100 feet. Baud rates may have to be slower for longer runs depending on the characteristics of the cable used. Belden # 9925 is recommended for best operation.

**NOTE: THE 5 PIN DIN CONNECTOR ADJACENT TO THE DB-25 CONNECTOR IS NOT A SERIAL PORT. DO NOT CONNECT DIN CONNECTOR SERIAL DEVICES TO THIS PORT.**

The printer parameters will need to be defined as 8 bits, no Parity bit, and 1 stop bit. Consult the manual for your printer to set your printer to these parameters. SES has an optional printer that is set correctly at the factory. Because of the wide variation in printers on the market, SES can not make specific recommendations for printers not purchased from SES.

**NOTE: SHIELDED CABLE MUST BE USED AND THE SHIELD MAY NOT BE USED AS A SIGNAL PATH.**

5.2 TERMINAL

The diagram below shows the connections necessary to operate most CRT terminals with a SAT DBRX. Connect ground to the terminal ground. Connect TX from the serial port to RX of the terminal. Connect RX from the serial port to TX of the terminal. Connect BUSY from the serial port to DTR of the terminal

The communications parameters for the terminal to communicate with the SAT DBRX are: 8 bits, No parity, 1 stop bit (8, N, 1).

The SAT DBRX leaves SES set at 9600 baud. Set your terminal to this speed.

The Belden # 9925 (or equivalent) can be run for distances up to 100 feet. For greater distances, consult factory.

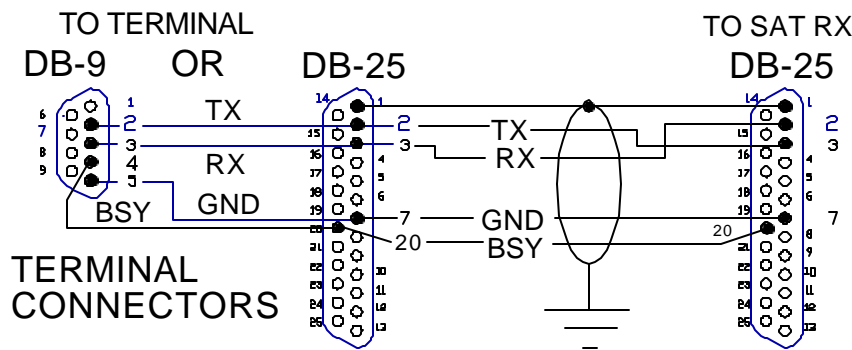
After the terminal is connected and powered on, press the escape key <ESC> once. This prompt will appear on the CRT screen:

PASSWORD

All SAT DBRX systems leave SES with a factory password of 777777. As the password is entered, the screen will replace each character with an "X" to keep the password confidential.

After the password is entered, the main menu will be displayed. See section 4.0 INITIALIZATION AND PROGRAMMING THE SAT DBRX to program the system.

**NOTE: SHIELDED CABLE MUST BE USED AND THE SHIELD MAY NOT BE USED AS A SIGNAL PATH.**



If you have any problems getting the "PASSWORD" message on your terminal, it may be necessary to check your terminal's operation. The best way is to remove the TX and RX wires from the serial port adaptor and temporarily connect them together. This is called "echo" or "loop back" and will verify terminal connections. Pressing a character on the keyboard should echo the same character to the screen. Now

re-check this by disconnecting the TX and RX wires, and echoing a character. This time, nothing should echo to the screen. Until you can verify this operation, there is no need to connect the terminal to the SAT DBRX serial board.

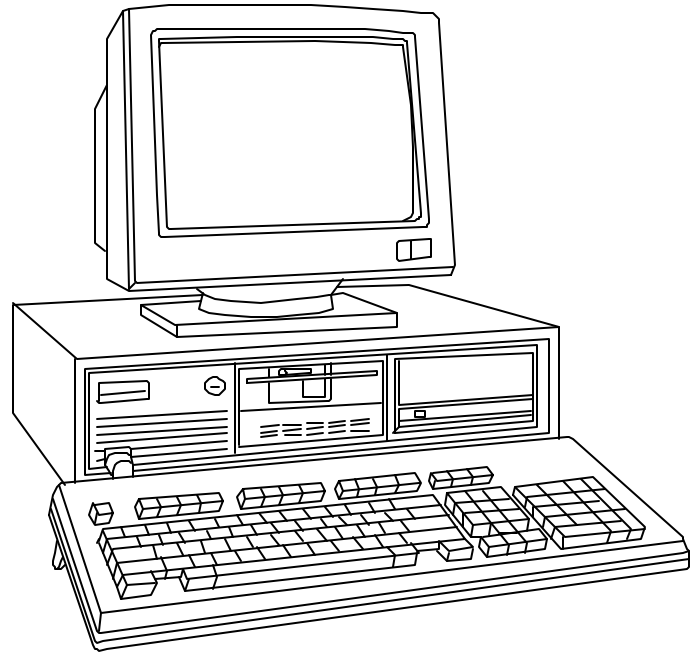
### 5.3 CONNECTING A PERSONAL COMPUTER

The SAT DBRX also may be remotely programmed by IBM DOS based compatible personal computers. These must be equipped with at least: a serial port (Comm 1 - 4), 256K of memory and at least one floppy diskette. This is accomplished through the use of optional software (SVOPTSWDISC3R5 for 3.5" floppies or SVOPTSWDISC5R25 for 5.25" floppies).

To operate the software provided (SVOPTSWDISC3R5 or SVOPTSWDISC5R25), start your personal computer, and after boot-up, insert the floppy diskette provided in the A: drive. Type in SAT DBRX and hit the return or enter key.

This prompt will appear on the CRT screen of your personal computer:

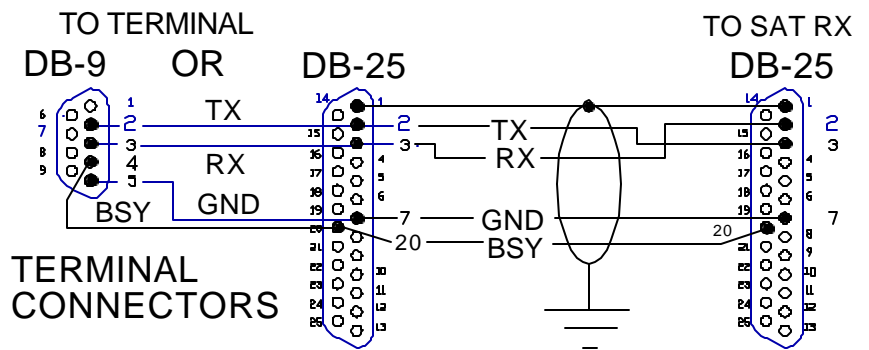
PASSWORD



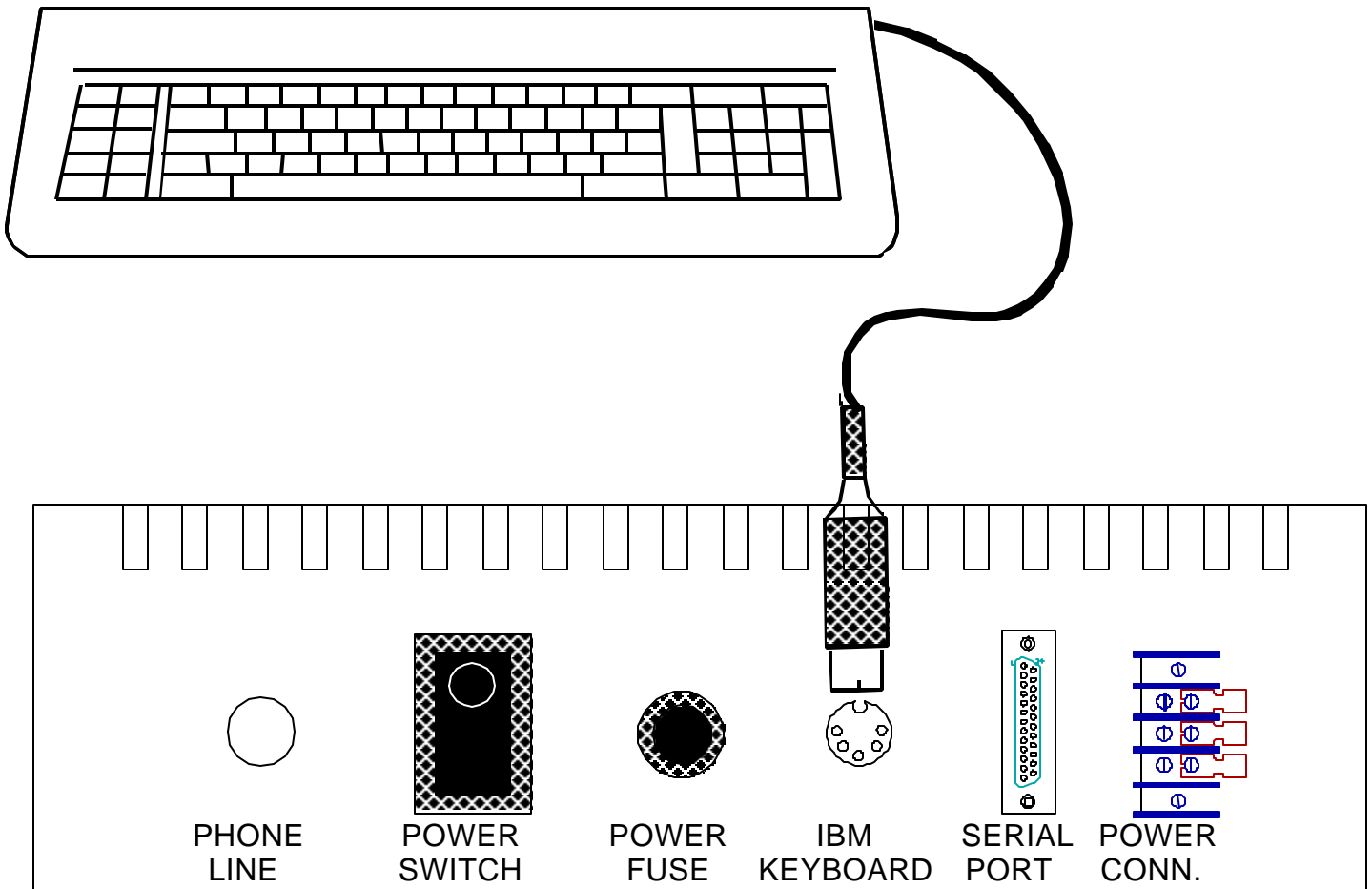
All SAT DBRX systems leave SES with a factory password of 777777. As the password is entered, the screen will replace each character with an "X" to keep the password confidential. After the password is entered, the main menu will be displayed. See section 3.0 INITIALIZATION AND PROGRAMMING in the SAT DBRX User Guide to program the system. If more than 60 seconds elapse without a keystroke, the SAT DBRX will disconnect. It will then be necessary to press "SRX" and start again.

**NOTE: SHIELDED CABLE MUST BE USED AND THE SHIELD MAY NOT BE USED AS A SIGNAL PATH.**

If you have any problems getting the "PASSWORD" message on your personal computer, it may be necessary to check your personal computer's operation. The best way is to remove the TX and RX wires from the SAT DBRX serial port adaptor and temporarily connect them together. This is called "echo" or "loop back" and will verify terminal connections. While operating the terminal software program, pressing a character on the keyboard should echo the same character to the screen. Now re-check this by disconnecting the TX and RX wires, and echoing a character. This time, nothing should echo to the screen. Until you can verify this operation, there is no need to connect the computer to the SAT DBRX serial port.



## 6.0 IBM KEYBOARD



To program the SAT DBRX, an I.B.M. PC or compatible (84 key keyboard) must be used. **The keyboard used on the I.B.M. A.T. will NOT work.** Replacement or clone keyboards may not work. The following list of keyboards has been tested and found to work on the SAT DBRX.

I.B.M. P.C. or X.T. (I.B.M. X.T. ONLY NOT I.B.M. A.T.)

Keytronic P/N 24920

Keytronic EuroTech

U.S. keyboard Company P/N 25054

Digitran KD0167-4T

To program the SAT DBRX with an IBM style keyboard, turn off the power switch in the back of the SAT DBRX. Next, plug in the keyboard and turn the power switch on. Press the "ESC" key once. After the "ESC" is pressed, the main menu will be displayed. See section 3.0 INITIALIZATION AND PROGRAMMING in the SAT DBRX User Guide to program the system. If no keystroke is entered within 60 seconds, SAT DBRX will exit the programming mode. It will be necessary to reenter programming mode, by pressing the "ESC" key again.

**NOTE: DO NOT PLUG KEYBOARD IN "HOT".**

**7.0 OPERATION OF SAT DBRX**

**7.1 RECEIVING A CALL FROM A SAT**

The SAT DBRX is primarily a monitoring device that responds to DTMF signal IDs that are transmitted from S.E.S. Self-identifying Automatic Telephones (SAT). When it receives an incoming call from a SAT, the ringer rings, and the message at right displays.

**INCOMING CALL**

Remove the handset from the cradle. If you have picked up on the first ring, you may have an additional ring before the SAT DBRX connects. This is to provide time for the SAT to ID.

After the SAT DBRX connects, the SAT ID prompt will appear as shown.

**SAT ID =**

Once the SAT IDs (sends its' ID number), the data base associated with that ID will be sent to the serial port. If the ID is in the data base, the message at right will display.

**SAT ID = XXXX  
ID VALID, IN DATA BASE**

If the SAT ID is incorrectly transmitted or not in the data base, the SAT DBRX will display this message.

**SAT ID = XXXX  
ID NOT IN DATA BASE**

Pressing the "#" key will bring up this additional information.

**SAT ID = XXXX  
DATA BASE EMPTY**

IF the ID is valid and a printer, CRT, or Personal Computer is not attached to the serial port, the database may still be viewed. Press the "#" key on the front keypad once to see the location as shown at right.

**SAT ID = XXXX  
ID VALID, IN DATA BASE**

Continuing to press the "#" will show on the LCD display the following lines (or fields) of

information one after the other:

NAME  
PHONE #  
ADDRESS  
CITY  
STATE  
NOTE L1  
NOTE L2  
SAT ID, TIME AND DATE

If a field is inadvertently skipped, simply continue to press the "#" key and the database will wrap around until the desired line (or field) shows on the display.

After 5 seconds, or after the SAT transmits its' ID, the microphone will be active, and two way voice communication is possible.

## 7.2 TERMINATING A CALL

There are three ways in which a call received from a SAT may be terminated.

- 1) By hanging the handset on the cradle. This will transmit a disconnect tone to the SAT.
- 2) By exceeding the length of time that the SAT is set to time out. SATs can be set for 1, 4, 8, 16, or 64 minutes, depending on the jumper JP13 selection on the SAT. At the end of this time it is the SAT that disconnects and terminates the call.
- 3) By pressing the "#" key on the keypad after placing a call to a SAT, and after the keypad is active. You can only do this before the SAT transmits its' ID. Once the ID has been transmitted, the "#" key scrolls through the data base.

After any call termination the SYSTEM READY message will return to the LCD display.

## 7.3 PLACING A CALL TO A SAT

**CALLING XXXX**

To call a SAT from the SAT DBRX, lift the handset from the cradle. The SAT DBRX will display "CALLING" as shown at left. Dial in the ID number of the SAT you wish to call. The display will show the ID selected on the display. The SAT DBRX will dial the phone number programmed into the ID database for that SAT. (See section 4.1.1.3).

If the ID code selected is not in the data base, the SAT DBRX will display the error shown at right. Hang up the handset on the cradle and try again with the correct SAT ID.

**CALLING XXXX  
INVALID CODE DIALED**

#### **7.4 FORCING A SAT ID TRANSMIT**

A SAT may be forced to transmit it's ID number (whether the call was placed or received), by pressing the "✕" on the keypad that is located on the front panel. While the SAT transmits it's ID, the microphone is disabled. If the SAT does not transmit an ID then the microphone is disabled for 5 seconds. If the call was placed from the SAT DBRX, any ID tones transmitted by the SAT are ignored unless, or until a forced transmit is initiated.

#### **7.5 PHONE LINE TROUBLE**

In the event of phone line trouble, the message at right will display and will be transmitted to the printer and the buffer. Possible causes could be:

**\*PHONE LINE TROUBLE\***

- 1) Phone line unplugged.
- 2) Incoming phone line dead.
- 3) Another instrument on the same line in use.
- 4) Phone wiring shorted.

The SAT DBRX will print the phone line trouble message to the printer (and the buffer) every minute until the problem is corrected. It will also send an error tone to the handset speaker.

## I. FCC REQUIREMENTS

1. The Federal Communications Commission (FCC) has established Rules which permit this device 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 this unit is malfunctioning, it may also be causing harm to the telephone network. This device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
  - a. The telephone number this unit is connected to
  - b. The ringer equivalence number
  - c. The USOC jack required
  - d. The FCC Registration number

Items `b' and `d' are indicated on the label.

The ringer equivalence (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.



## II. SERVICE REQUIREMENTS

1. In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. Service can be obtained at:

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---

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Phone: \_\_\_\_\_

**Warning:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This Equipment has been tested and found to comply with the limits for a Class A digital device. This is pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. If this is the case, the user will be required to correct the interference at his own expense.

**NOTICE:** The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The **Load Number** (LN) is assigned to each terminal device. This denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices. This is subject only to the requirement that the total Load Numbers of all the devices does not exceed 100.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus. This is set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la Class A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

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