User Guide for the Silence Sense Sr. Silence Sense Detector and Pager / Dialer

Version 1.0

DM Engineering
2174 Chandler St.
Camarillo, CA 93010
805-987-7881
www.DMEngineering.com

Theory of Operation

The Silence Sense Sr. is a microprocessor-based device that senses the presence of audio from a single ended input over a wide range of input levels. A user adjustable input control and LED indicator are used to set the input sensitivity. When the audio input ceases for a predetermined user selectable period, (0-60 seconds standard or approximately 15 seconds to 3 ½ minutes, by special order), a pre determined phone number and tone or paging sequence is transmitted over a standard telephone line. If set to "chain", a second phone number and tone or paging sequence will be processed automatically. Re-application of audio automatically resets the device. If the "chain" feature is not used, the Pager/Dialer section has an additional input that may be connected by the user for any purpose of their choice. A contact closure will activate this second input channel. Power indication is indicated by a green LED, which turns amber during dialing and paging sequences. Programming is accomplished using the "HyperTerminal" program supplied with Microsoft Windows 95 and 98. Memory for the programmed codes is saved in non-volatile e^2prom. Power for the device is supplied by a "wall wart" power supply and battery back up is provided to assure operation when the power fails.

Connections

1. Audio input…A single ended audio source is attached to the supplied RCA male connector. This connector is to be inserted in the RCA female connector on the end of the Silence Sense Sr.
2. Phone Line…A standard RJ11 phone line connection is made with the supplied 6' cable.
3. Power input…Connect the "wall wart" 12-volt DC output connector to the power input jack on the unit. Plug the "wall wart" into a convenient 117VAC outlet.
4. Battery back up…Remove the rear battery compartment door by pressing down and outward on the latch. Locate the battery that was shipped with the unit and remove the protective terminal cover from the battery. Connect the battery to the snap on battery connector in the compartment and replace the door.
5. Programming input…A DB9 female connector is provided for interface with a computer serial port using the supplied cable. See Programming instructions.
6. Chain connector…By placing the supplied red shorting jumper across the 2 pins on the chaining circuit, the device will automatically dial both numbers and send both codes programmed into the device in the same sequence that the particular inputs were activated.

7. Activation inputs…The left most input screw connector is dedicated to the Silence Sense function, but may be used for another function if desired by removing the wire connected to it. This will disable the Silence Sense function entirely. The second input and "common" screw connectors may be used for any contact closure application the user desires, and will activate the unit with the phone number and codes programmed into the second channel of memory.

Setup and programming

1. Connect the DB-9 cable to the computer serial port of your choice using the supplied cable.
2. Disconnect all alarm inputs, <u>including the blue wire to the SS input screw terminal</u>, telephone cable and 9V battery from the Pager-Dialer if connected.
3. Connect the AC power adapter to the power input jack of the Pager-Dialer and connect the power adapter to the wall socket.
4. Power up your computer and using Microsoft Windows 98™ or "95". On the desktop go to **Start, Programs, Accessories, Communications, HyperTerminal**. Select **HyperTerminal** and enter whatever name and select an icon at the prompt that you desire to record the programming sequence for this device. Click **OK**.
5. In the **connect to** dropdown box click on **Direct to COM 1** or **Direct to COM 2**, indicating whichever serial port you are connecting to. Click **OK**.
6. In the **Com Properties / Port Settings** window, set the **Bits per second** to **9600**, the **Data bits** to **8**, the **Parity** to **None**, the **Stop bits** to **1**, and **Flow control** to **None.** Click **OK** to close the **Com Properties** window.
7. Click **File, Properties.** Click on the **Settings** tab, then the **ASCII Setup** box. Check **Echo typed characters locally** and **Append line feeds to incoming line ends**. Check **OK** twice. Leave any other checked boxes as they are.
8. You are now in **Terminal** mode. **<u>Turn the Caps Lock on your keyboard on</u>**.
9. Type **D1** and then type the phone or pager number to dial for the first alert input port, followed by **Enter**. Your entries will <u>NOT</u> echo on the terminal screen. Do not put any spaces, dots or dashes or other characters in the string. Valid characters are 0 through 9, *, #, and W. A "W" will insert a 2.5 second delay between dialed characters and is considered a character in itself. A maximum of 15 characters are allowed for phone numbers and 15 characters maximum for alert codes for each input.
10. Now type **D1** followed by **Enter**. The terminal screen should now verify your input by displaying the phone or pager number entered. If you make an error at any time just press **Enter** to exit the inputting string and retype the **D1** or the appropriate programming command followed by **Enter** again to reprogram. This is true for any of the programming strings to follow.

11. Type **P1** followed by **Enter**, and type the code you want to use for the pager display or telephone audible. **It is mandatory that the last character in a pager alert code be the # symbol of the paging function will not work**. Telephone audibles may end with any character.
12. Type **P1** and enter to verify the alert code you entered.
13. Repeat steps 9-12 for the 2nd alert input pager or telephone number and code number, using **D2** and **P2** instead of D1 and P1 to program this input.
14. Your programming setup is now complete. Disconnect the Power and programming cable from the Pager-Dialer, and shut down HyperTerminal on your computer. You will be prompted to save the session and it is advisable to do so in the event you wish to reprogram the device without having to retype all of the setup information
15. If you wish to have both alert inputs dial both programmed numbers in case either or both inputs are activated, place the red "**Chain**" jumper on both terminals where provided. To have each alert input dial separately without transmission with the other programmed information, remove or place the "**Chain**" jumper only on one terminal.
16. Adjust the audio gain control to maximum or fully clockwise position, and the duration control to the minimum or counter clockwise position.
17. You may now reconnect the alert input connection(s), DC power cable, telephone modular cable and back-up battery to the Pager-Dialer. Remember that the back-up battery is in use whenever the DC power connection is removed or whenever there is no AC power from the wall to the AC power adapter. If the unit is not in use, **disconnect the back-up battery.**
18. With audio present at the input, adjust the gain adjust control in the counter clockwise direction until the yellow LED starts to flicker during low audio passages. Depending on your programming, this level may need to be readjusted for reliable audio detection later.
19. Adjust the duration set control to the desired timeout period. Fully counter-clockwise is 5 seconds, mid-setting is 30 seconds, and fully clockwise is 60 seconds, or approximately 15 seconds, 1 ¾ minutes, and 3 ½ minutes respectively on special order units. You may set the control to any position desired. Note that after the adjustment is made the power **and** battery backup must be momentarily be removed and reapplied to reset the timing microprocessor. This is true any time the duration set adjustment is changed. The power LED will signify when the timeout period has been reached.

Operation and test

To test the Silence Sense Sr., remove the audio input RCA connector and wait for the power LED to show activation. This will be the actual delay time, and may be reset at will. Remember to momentarily remove the power to reset the microprocessor each time this adjustment is changed.

To test the battery back-up operation simply disconnect the external DC power. The Silence Sense Sr. should continue to function normally. That's it… the Silence Sense Sr. is now ready and waiting to monitor your audio.

Hints

Most programming has pauses from time to time that may last for 30 seconds or more, especially if you are broadcasting Sunday morning church services. Experience has taught that 45-60 seconds or more is the best selection if you don't want to receive false alarms. Also, take time in setting the input levels. Wait and watch the yellow LED through different types of programming or selections of music and speech to assure that the sensitivity is set correctly.

Specifications

- Audio Input: Impedance is 10K ohms minimum, single ended, RCA female connector
- Audio Input Level: -20 to +10 dbm., input adjustable
- Silence Detect Time: 5-60 seconds, (15-210 seconds, approx., by special order), user adjustable
- Activation input: N.O. Contact closure or pull down (+5VDC pull ups supplied) between input and common screw terminals.
- Output: DTMF supplied by an RJ11 connector and cable.
- Programming: Serial connection using "HyperTerminal" application program as supplied with Microsoft Windows 95 or 98 or equivalent.
- Power Requirements: Supplied adapter, 115 VAC to 12 VDC, 100-200 ma.
- Battery Back-up Requirements: 9 VDC alkaline battery, NEDA 1604A (supplied)
- Size: 5.1 x 5.3 x 1.7
- Shipping Weight: Approximately 2 lbs.