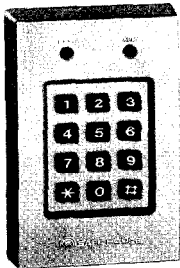# DIGITAL KEY SWITCH

OWNER'S MANUAL

PLEASE READ
BEFORE USING
THIS EQUIPMENT

*TRADEMARKS OF
TANDY CORPORATION

SAFE HOUSE

Your SAFE HOUSE Digital Key Switch is a high quality, U.L. approved security device designed and manufactured in Tandy Corporation's own factories. It eliminates the need to carry a key for arming/disarming your alarm system. instead, you simply enter your personally selected 4-digit code. The unit's microprocessor allows you to select from 10,000 possible codes.

Note: You may change the code as often as you like.

Other features available with the Digital Key Switch are:

- Selectable arm/disarm switch mode (latching or momentary).

- ARM indicator shows alarm status, if your system provides connections for remote arm indicators.

- LOOP indicator shows perimeter loop status, if your system provides connections for remote loop indicators.

- Panic circuit for manual activation of the alarm from the Digital Key Switch.

- Built-in tamper switch to prevent unauthorized entry into the switch box.

- Wrong number lock-out to discourage random code number entries by unauthorized persons.

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READ THIS BEFORE CONTINUING

Proper connection and installation of the Digital Key Switch requires careful planning, **before you begin work.** We urge you to read this entire manual and plan your installation before continuing.

The manual includes general installation information as well as specific connection drawings for Radio Shack alarm systems. Radio Shack cannot provide specific information for alarm systems from other companies.

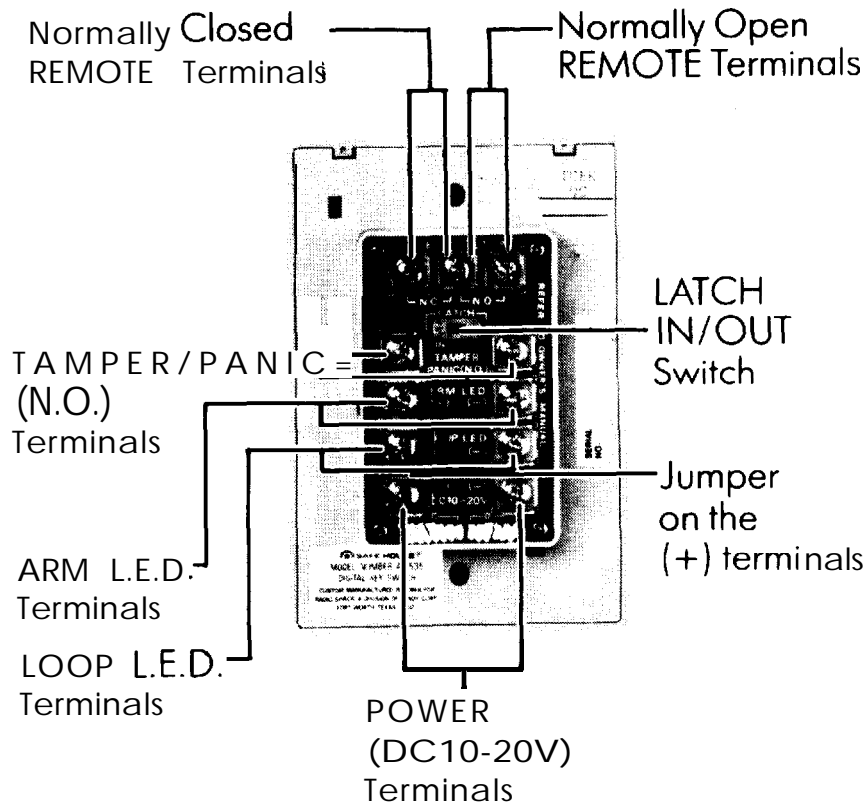Important points to consider are:

- **Where will the Digital Key Switch be located?-** the digital key switch is designed only for **indoor** installation.

- **How many wires will be needed and how long must they be? —** how many of the Digital Key Switch's features will be used by your alarm system.

- **What other hardware and tools are needed?-** the Digital Key Switch requires a standard single-gang electrical box for mounting (the same kind used for single wall switches and AC outlets). Once this box is installed, only a screwdriver is needed to complete the installation.

Note: This unit may be mounted without the electrical box in wood walls (using wood screws) or on plasterboard walls (using molly bolts). However, the box will give added security and protection.

After reading this manual, you should be able to answer the above questions and begin installation.

3

CONNECTIONS

The Digital Key Switch is compatible with many alarm systems. However, some alarm systems might not use all of the Digital Key Switch's connections and features, and each system will require some variations in wiring connections. Pages 4-9 give basic guidelines for connection. If you are using a Radio Shack alarm system, see the separate wiring diagrams for exact connect ion.

Normally **Closed**
REMOTE Terminals

Normally Open
REMOTE Terminals

LATCH
IN/OUT
Switch

TAMPER/PANIC =
(N.O.)
Terminals

Jumper
on the
(+) terminals

ARM L.E.D.
Terminals

LOOP L.E.D.
Terminals

POWER
(DC10-20V)
Terminals

REMOTE **Normally Open/Normally Closed Terminals –** connect the appropriate pair of these terminals (N.O. or **N.C.**) to the remote arm/disarm terminals on your alarm; consult the manual for your system. The center terminal is a common connection for both N.O. and N.C. arm/disarm switches.

Note: Systems may vary as to whether the armed or disarmed state of their arm/disarm switch is considered to be the "normal" state. If you are not sure about your system, see "OPERATION AND TESTING."

LATCH IN/OUT Switch – set this switch for the type of switch closure necessary to operate your system's arm/disarm switch (latching = IN, momentary= OUT). If you are not sure what type of closure is needed, check your system's owner's manual or contact the manufacturer.

Note: This switch must be set before power is connected to the Digital Key Switch. After power is applied, the microprocessor will not recognize a change in the switch setting.

TAMPER/PANIC (N.O.) Terminals-connect these terminals to the normally open tamper/panic/24-hour loop on your alarm system. If your system only has a normally closed panic loop, these terminals cannot be used.

4

5

ARM LED Terminals (+/-) -connect to the remote arm indicator terminals on your alarm system. Be sure to observe the marked polarity (+ and -).

Note: Some systems might not have connections for remote arm indicators.

If your system has the schematic symbol for a diode above its terminals instead of polarity markings, use the following drawing to determine the correct connections.

(anode)   (cathode)
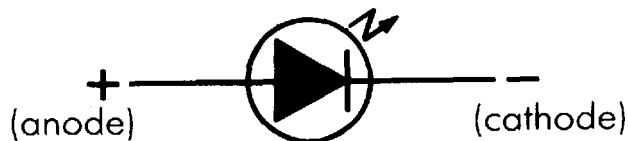
LOOP LED Terminals – connect to the remote loop indicator terminals on your alarm system. Be sure to use the marked polarity (+ and -).

Note: Some systems might not have connections for remote loop indicators.

If your system has the schematic symbol for a diode, instead of polarity markings, use the drawing on previous page to determine the correct connections.

POWER Terminals (DC 1 0-20V)-connect to a constant source of 10-20 volt DC power provided by your alarm system.

Be **sure to observe the marked polarity (+ and -).**

Jumper (on + terminals) – allows for one connection to the "common" side of the alarm circuit. If your system uses a negative (-) common, move the jumper to the negative ARM, LOOP, and POWER terminals.

If you cannot determine which terminal is "common" on your system, remove the jumper and make separate connections for each terminal.

HOW AND WHEN TO USE THE JUMPER

The Digital Key Switch is supplied with a three-terminal jumper connected to the positive (+) side of the ARM, LOOP, and POWER terminals. This eliminates multiple connections to the "common" indicator terminals.

If your system has common positive (+) connections for its indicators, leave the jumper as it is and make connections similar to the drawing below.

Alarm System with Positive (+) Common Circuits

Jumper on the (+) terminok
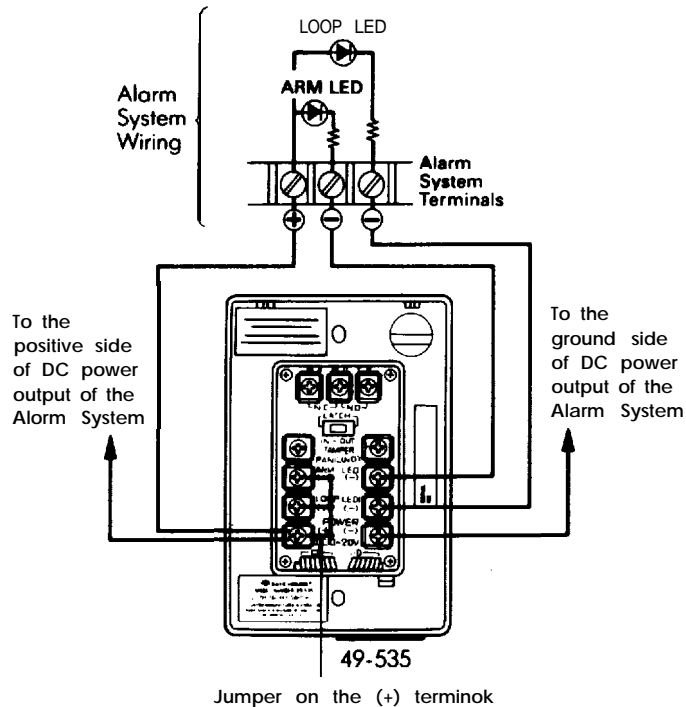
If your system has common negative (-) connections for its indicators, move the jumper to the negative ARM, LOOP, and POWER terminals and make connections similar to the drawing below.

Alarm System with Negative (-) Common Circuits

49-535

Jumper on the (-) terminals
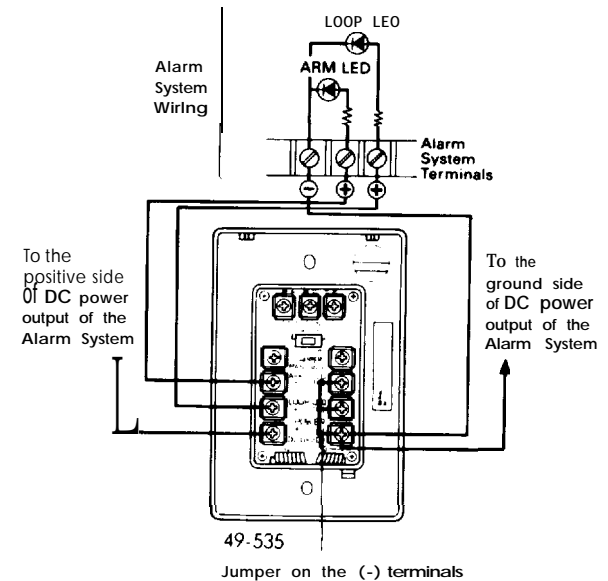
If your system does not have polarity markings or other means of determining the common terminal, contact the manufacturer or authorized dealer for advice.

For connections with Radio Shack alarm systems, refer to the separate sheet.

INSTALLATION

Installation Hints

- Before installing the Digital Key Switch, make temporary connections between the alarm system and the Digital Key Switch to confirm proper operation. If you have problems, see "OPERATION AND TESTING."

- Install the Digital Key Switch indoors where it will not be subjected to dust, dirt, or extremes in temperature or humidity.

- Set the LATCH IN/OUT switch before power is connected to the Digital Key Switch.

1. Select a location on the wall that is next to a wall stud.

2. Using a single-gang electrical box as a template, make a hole just large enough to accept the electrical box.

3. Run the necessary wires from the alarm system to the hole (through attic, walls etc.) and through one of the knock-out plugs in the electrical box. **Be sure to leave enough extra wire to allow for connection to the Digital Key Switch.**

4. Insert the box into the hole and nail it to the wall stud; the box should be recessed slightly below the surface of the wall.

5. Connect the wires to the Digital Key Switch terminals, as described in the manual. **Be sure to avoid stray wires that touch other terminals or the sides of the box.**

6. Carefully push the wires into the box and attach the keyboard portion of the Digital Key Switch to the box using the two supplied screws.

7. Hang the Digital Key Switch cover plate at the top of the Digital Key Switch and secure it at the bottom using the supplied set screw.

Note: The cover plate holds in the tamper switch plunger. If the tamper switch is connected to a 24-hour panic/tamper loop on your alarm, the alarm will be tripped if the cover plate is removed, even if the alarm is not armed.
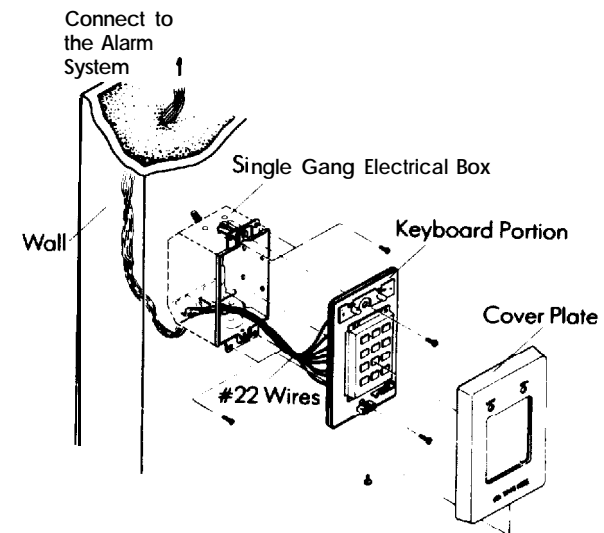
OPERATION AND TESTING

IMPORTANT

To prevent false alarms when testing your system, be sure to disconnect security dialers or any other devices that sends a message to a remote location. It is also a good idea to temporarily replace bells or other sounding devices with a **1** Z-volt bulb that draws less than **1** amp.

SETTING YOUR SECURITY CODE

When power is first connected to the Digital Key Switch, the preset factory security code will be in effect. This code is [**1 2 3 4].**

1. Press **[*]**.

2. Enter the current security code -the preset factory code ([1 2 3 **4])** or any code you have previously selected.

3. Enter your personal code — the code may be any four digits; you may repeat a digit as many times as you like. For example: [3 5 6 **4]**, **[5 5 5 9]**, or **[9 8 2 2]**.

Note: We suggest you avoid obvious numbers such as your street address, birth date, etc. Also, it is a good idea to periodically change your code.

4. Press [***]** a **final time to complete the code entry.**

Notes

- If you take more than 10 seconds to complete step 2, 3, or 4, the Digital Key Switch will automatically reset to the old code. You must begin again with step 1.

- If you make an error before completing step **4,** press [#] (clear) and begin again with step 1.

- If you realize you made a mistake in the new number after completing all steps, you must repeat the process using **the incorrect code number in step 3.**

If you do not know, or remember, the code number, temporarily disconnect power from the Digital Key Switch. This will reset the code to the factory code number ([1 2 3 **4]).** Then begin with step 1.

ARMING/DISARMING THE ALARM SYSTEM

1. **After your code is** selected, enter the number to arm the system; the **ARM LED** indicator should light (if such **connections were** made during installation).

Note: If **the action of the ARM LED** is reversed (the indi-**cator** lights when the system is disarmed), you have **probably used the wrong REMOTE** Normally Open/ **Normally Closed terminals.** Change the connections **and try it** again.

2. **Trip the alarm and confirm that** it is, in fact, armed.

3. Enter your **code again** to disarm the system.

If the Digital Key Switch does not respond to your code, it is **possible that** there was a power failure while you were away **or that there is a** loose, "intermittent" connection at the **POWER terminals.** In either case, the **Digital** Key **Switch will reset to the** factory code ([1 2 3 4]) **when power is restored.**

ARM AND LOOP INDICATORS

The operation of these indicators will vary depending on the type of alarm system you use. Some systems will use both indicators; others might use only one or neither.

In most cases, these indicators should **respond in the** same way os corresponding indicators on the main alarm unit.

If connections are made and the indicators do not work, check for loose connections, incorrect polarity, etc.

PANIC CIRCUIT
If the **PANIC** terminals on the Digital **Key Switch are** connected to a 24-hour panic/tamper loop on your alarm system, simultaneous pressing of. [#]. and [*] should trip the alarm at any time, whether or not the system is armed.

On some alarm systems **(49-450, for example) you may reset** the alarm by entering your code at the Digital Key Switch. If this does not work, you **will have to reset it at the main alarm unit.**

PROBLEM SOLVING

We don't expect you to have problems, but if you do the solution is probably listed below.

- Make sure all connections are correct and secure-no stray or broken wires.

- Check for the proper setting of the LATCH IN/OUT switch.

   Remember -the microprocessor will not recognize changes in the setting unless POWER is disconnected.

- Make sure power is on — to the Digital Key Switch and the alarm system.

   Remember — the security code will reset to the preset factory code **(1** 2 3 4) if power is disconnected.

- If you forget the code, temporarily disconnect POWER to reset to the factory code.

   Note: If your system has battery back-up, you must temporarily disconnect the battery power also, in order to reset the code number.

- If you cannot reset the alarm from the Digital Key Switch after activating the panic circuit, your alarm system is not equipped for this feature. Reset the alarm from the main alarm unit.

If none of the above solve your problem, go to your local Radio Shack for advice.
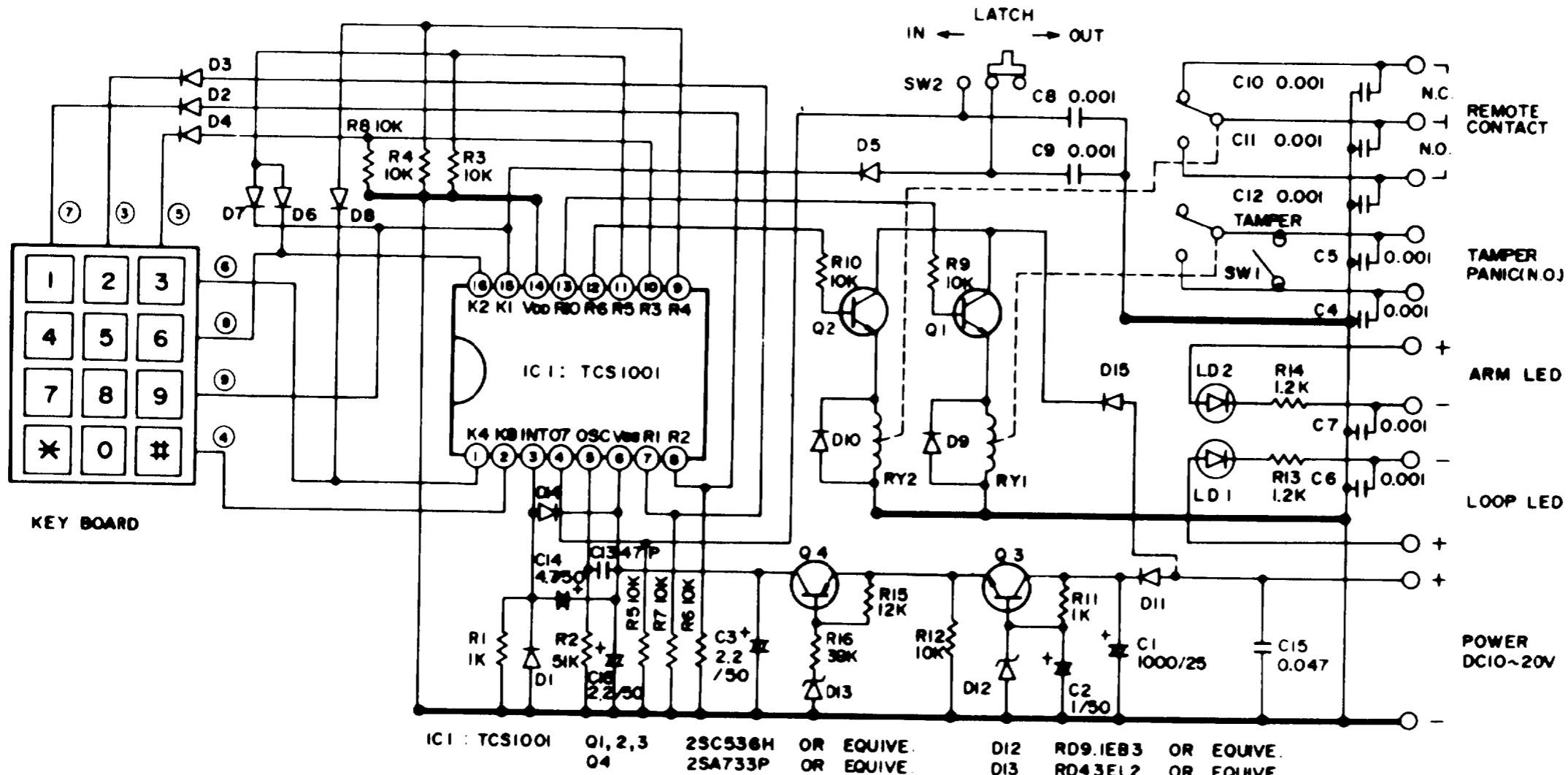
SCHEMATIC

NOTES: (1)ALL RESISTANCE VALUES ARE INDICATED IN "OHM" (K=10^3OHM, M=10^6OHM)

(2)ALL CAPACITANCE VALUES ARE INDICATED IN "μF" (P=10^{-6} μF)

Schematic subject to change without notice. For most accurate Schematic (and parts) contact Radio Shack, National Parts Dept., Barrie, Ontario, L4M 4W5.