

Radio Key[®] 100M

**STAND ALONE
PROXIMITY ACCESS CONTROL SYSTEM**

with DYNASCAN[®] TECHNOLOGY*

Secura Key
A Division of SOUNDCRAFT Inc.

P/N 3321525

**Operating Guide
Rev. D**

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*U.S. Patent #6317027

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Radio Key® 100M Operating Guide

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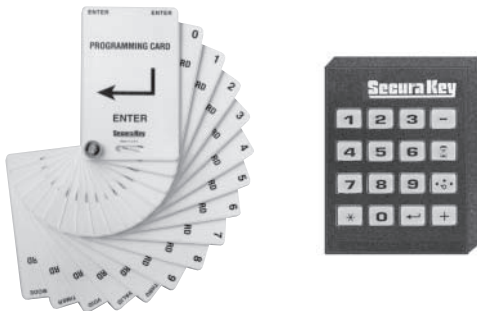
INTRODUCTION

The Radio Key® 100 is a programmable single-door access control system which controls access for up to 100 users. It can control an electric strike, magnetic lock, or gate operator, and has an additional programmable input which may be set as a remote open input or as an LED/Beeper control for use with the Wiegand output. A Wiegand output is also provided to allow for later upgrading to an on line system. Information on using the RK100 as a Wiegand reader is contained on page 17. The major components are shown in Figures 1 and 2.

The Radio Key® 100 Access Control Unit contains the CPU, memory, access relay, and an internal reader. It has a beeper, and a bi-color LED indicator. An RK-PD1 Program Deck or RK-HHP Handheld Programmer (not included), is used to add or delete transponders, to set the operating mode, to program the password and latch timer. The **Radio Key® 100** is compatible with the Secura Key SecuRelay™, an intelligent relay module used to eliminate the possibility of break-in by attacking the access control unit.



Figure 1 - Radio Key® 100M Unit



**Figure 2 - Programming Deck (RK-PD1)
& Hand-Held Programmer (RK-HHP)**

PROGRAMMING RADIO KEY® 100

Radio Key® Transponders (Key Tags and Cards) are pre-encoded and engraved at the factory with unique Transponder ID numbers. Because these numbers are unique, Facility Codes (Site Codes) are not required.

Transponder ID Numbers are not pre-programmed into the Radio Key® 100; you must add them to the system as described below.

Radio Key® 100 allows you to assign a Transponder to each **User ID Number** (1 - 100) for programming purposes. The User ID Number is associated with the individual person using the transponder.




Be sure to record the User ID Number, the Transponder ID Number and the user's name, and keep this information in a secure place. A blank User Log Form has been included for this purpose. Do not write on this form; use it as a photocopy master.

Because a new Transponder ID Number can be assigned to any available User ID Number, the reader always has capacity to store 100 Transponders, even after many Transponders have been voided from the reader.

The RK-PD1 Program Deck

Note: The RK-PD1 or the RK-HHP are required to program the reader. One Program Deck or Handheld Programmer may be used on several readers.

The RK-PD1 consists of the 16 following cards:

 ENTER	"7" SEVEN
"0" ZERO	"8" EIGHT
"1" ONE	"9" NINE
"2" TWO	"✱" THRU
"3" THREE	"+" VALID
"4" FOUR	"—" VOID
"5" FIVE	 SETTIMER
"6" SIX	 MODE

Presenting these cards to the **Radio Key® 100** is equivalent to pressing keys on the handheld programmer. As you present program cards to the unit, it will chirp to indicate that it has read the card. The next sections of this manual explain the program card sequences used to perform the various program functions. Program sequences are the same for RK-PD1 and RK-HHP.

PROGRAMMING STEPS

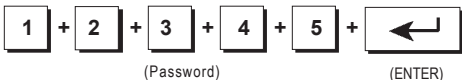
To program the **Radio Key® 100**, you must first enter the program mode as described in the next section below. Once in the program mode, the LED will blink amber as an indicator. To take the unit out of program mode you may select an operating mode (see page 14) or simply allow 15 seconds to elapse without presenting a program card to the reader.

After you have completed a proper program sequence, the unit will beep and the LED will flash green to indicate that the program instruction has been accepted. A red light and a beep at the end of a programming sequence means that you have made an error. Refer to the appropriate section, and carefully re-enter the command in the proper sequence.

NOTE: User ID Number and ID Number Values in the following examples are for demonstration purposes only; enter the appropriate values for your system.

To Enter Program Mode:

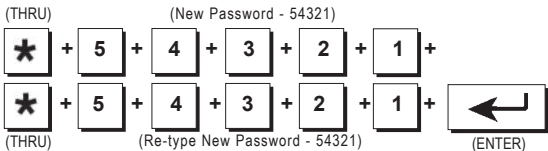
Present Program cards to the unit in the sequence that represents the password and then present the “ENTER” card. (All new units are pre-programmed with the password 12345.) The LED will flash amber to show that the unit is in Program Mode. The unit will “time out” and return to Active (Normal) Mode in 15 seconds if no Program card is presented.



NOTE: If five incorrect passwords are entered, the unit will sound an alarm and display a red LED for 30 seconds, then return to normal mode.

Change your Password:

Put the unit into the Program mode, if necessary (See above). Present the **THRU** Card to the unit. Then present the sequence of program cards representing the desired new password (exactly 5 digits) to the unit. Then present the **THRU** Card. Again present the sequence of program cards representing the desired new password to the unit. Present the **ENTER** card to the unit. A green light and beep means that the Password was changed. Note that 12345 is the default (factory) password; use another number sequence for best security.



Lost or forgotten Password

If the password is lost or forgotten, it can be restored to the factory default (12345). Remove the **Radio Key® 100** unit from the wall and disconnect power. With the Data 1 line (white wire) temporarily connected to the Remote open line (brown wire), restore power. The factory default (12345) is now in effect. Remove power and reconnect the unit for operation, restore power and remount the unit. This procedure will **NOT** delete any transponders from reader's memory.

Add a Transponder (Key Tag or Card) to the System:

Put the unit into the Program mode, if necessary (See Page 7). Present the ADD card to the unit and then present the sequence of program cards representing the desired User ID Number (1-100) to the unit. Then present the ENTER card to the unit. Hold the Transponder near the Radio Key® 100 Unit.

A green light and beep means that the Transponder was accepted. For example, to program a transponder into User ID Number 12, the following sequence would be followed;



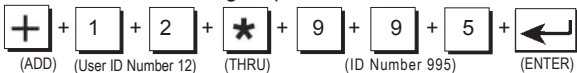
Record the User ID Number and Transponder ID Number on the User Log Form.

Note: If you assign a new transponder to a User ID Number where another transponder was already assigned, the new transponder will replace the old transponder for that User ID Number.

Add a Transponder by Entering the Transponder ID:

Instead of presenting the transponder, you can also use the Program Deck to enter the Transponder ID number: Put the unit into the Program mode, if necessary (See Page 7). Present the **ADD** card to the unit and then present the sequence of program cards representing the desired User ID Number (1 - 100) to the unit. Present the **THRU** Card. Present the sequence of program cards representing the ID number

printed on the Transponder. Then present the **ENTER** card. For example, to program a Transponder ID Number 995 into User ID Number 12, the following sequence would be followed;



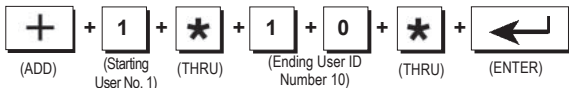
Record the User ID Number and Transponder ID Number in the User Log Form.

Note: If you assign a new transponder to a User ID Number where another transponder was already assigned, the new transponder will replace the old transponder for that User ID Number.

Add a Series of Transponders to the System:

Put the unit into the Program mode, if necessary (See Page 7). Present the **ADD** card to the unit and then present the sequence of program cards representing the desired starting User ID Number to the unit. Present the **THRU** card. Then present the sequence of program cards representing the desired ending User ID Number. Present the **THRU** card, then present the **ENTER** card. Present the Transponders to the

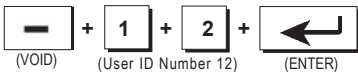
reader in the desired order (making a careful record of which transponders are assigned to which User ID Numbers). If one or more Transponders are already entered into the User ID Number range you have selected, they will be overwritten. For example, to program ten transponders into User ID Numbers 1 through 10, the following sequence would be presented;



then present the ten transponders to the unit one at a time.

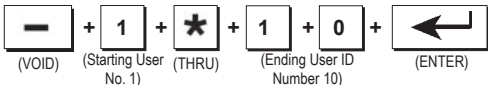
Delete a Transponder from the System:

Put the unit into the Program mode, if necessary (See Page 7). Present the **VOID** card to the unit and then present the sequence of program cards representing the desired User ID Number (1 - 100) to the unit. Then present the **ENTER** card to the unit. A green light and beep means that the Transponder was deleted. For example, to delete the transponder for User ID Numbers 12, the following sequence would be executed;



Delete a Range of Transponders from System:

Put the unit into the Program mode, if necessary (See Page 7). Present the **VOID** card to the unit and then present the sequence of program cards representing the desired starting User ID Number to the unit. Present the **THRU** card. Then present the sequence of program cards representing the desired ending User ID Number. Then present the **ENTER** card. A green light and beep mean that the range of Transponders was deleted.

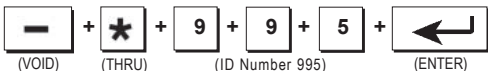
**Delete a Transponder by Presenting to Reader:**

Put the unit into the Program mode, if necessary (See Page 7). Present the **VOID** card to the unit. Then present the **ENTER** card to the unit. Hold the Transponder near the **Radio Key®** 100 Unit. A green light and beep means that the Transponder was deleted.

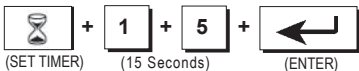


Delete a Transponder by Entering Transponder ID:

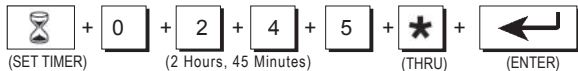
Put the unit into the Program mode, if necessary (See Page 7). Present the **VOID** card to the unit. Present the **THRU** card. Then present the sequence of program cards representing the ID number printed on the Transponder. Then present the **ENTER** card. A green light and beep means that the transponder was deleted. For example, to delete Transponder ID Number 995, the following sequence would be followed;

**Set the Latch Timer:**

Put the unit into the Program mode, if necessary (See Page 7). Present the **SET TIMER** card to the unit. Then present the sequence of program cards representing the desired Latch Time (0 - 65535 seconds) to the unit. Present the **ENTER** card. A green light and beep means that the Latch Timer setting was changed. If you set the Latch Timer for "0" seconds, the actual latch time will be approximately 0.25 seconds. For example, to set the latch timer to 15 seconds, the following sequence would be followed;



For longer latch times it may be easier to set the timer with hour:minute notation. Present the **SET TIMER** card; then present the sequence of program cards representing the number of hours (2 digits); then present the sequence of cards representing the number of minutes; then present the **THRU** card; then present the **ENTER** card. (The maximum relay time is 18 hours and 00 minutes.) For example, to set the latch timer for 2 hours and 45 minutes the following sequence would be followed:



Set the Operating Mode:

The **Radio Key**® 100 may be put into any of four operational modes. The Modes are as follows;

- "1" - Active (Normal) -- LED is Off
- "2" - Inactive (Locked) -- LED blinks Red
- "3" - Door Unlocked -- LED blinks Green
- "4" - Toggle Mode -- LED is Off

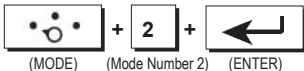
In mode 1, a valid tag or closure of the remote open input will activate the relay for the time the latch timer is set.

Mode 2 deactivates the unit. No tag can activate the relay, but the remote open input will activate the relay.

In mode 3, the door is kept unlocked (the relay is kept latched).

In mode 4, when a valid tag is presented or the remote open input is activated, the relay changes its state from deactivated to activated or from activated to deactivated. The relay will stay in this state until another valid tag is presented or the remote input is activated and so forth.

To set the Operating Mode, put the unit into the Program mode, if necessary (See Page 7). Present the **MODE** card to the unit. Then present either the “1”, “2”, “3”, or “4” card to the unit. Present the **ENTER** card. The Access Control Unit will exit Programming Mode and enter the selected Mode. For example, to set the unit to the inactive (locked) mode, the following sequence would be followed;



To Exit Programming Mode Immediately:

Present the **MODE** Card to the unit. Then present the “1” (or 2, 3, or 4) card to the unit. Present the **ENTER** card. This returns the unit to the selected mode immediately, bypassing the 15 second timeout.

**Configure the Relay**

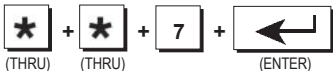
The relay is set at the factory to be normally open and to close upon presentation of a valid transponder or upon activation of the remote open (Request to Exit) input. It may be changed to normally closed or to SecuRelay™ operation. A normally open relay is used for a “fail-secure” electric lock or door strike and to trigger a gate operator. A normally closed relay is used for “fail-safe” devices such as magnetic locks. The Secura Key SecuRelay™ (sold separately) is a remote intelligent relay used to prevent entry when the access control unit is physically attacked. (NOTE: When placed in the SecuRelay™ mode the “Remote Open” input is disabled.) To configure the relay, put the unit in the Program mode, if necessary (See Page 7). Present the **THRU** card to the unit two times. Then present either the

“6”, “7” or “8” card to the unit. Present the **ENTER** card.

Selections are:

6. Normally Open (Factory default)
7. Normally Closed
8. SecuRelay™ Option.

For example, to configure the relay normally closed, the following sequence would be followed:



Using the RK100 as a Wiegand Output Reader

The RK100 can be connected to a multidoor access control system (such as the Secura Key SK-ACP) using the Wiegand output. When any Radio Key® transponder is presented to the unit, whether or not it has been programmed into the unit, the appropriate transponder ID will be sent out via the white and green wires.

Program the Input

The input is set at the factory as a Remote Open input. Connecting the brown and the orange wire (usually with a push button switch) will activate the relay for the time set for the latch timer. This input may also be configured as an LED control or as an LED/beeper control. When configured as an LED control, grounding the

brown wire will turn on the Red LED and grounding the orange wire will turn on the Green LED. The LED/beeper control works like the LED control except that every time the green LED is activated via this input, the beeper beeps for about one half second.

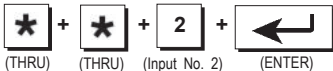
To configure the input, put the unit into the Program mode, if necessary (See Page 7). Present the **THRU** card to the unit. **Again** Present the **THRU** Card to the unit. Then present either the "1", "2", or "3" card to the unit. Present the **ENTER** card. Selections are:

"1" - Remote Open (Factory default).

"2" - LED Control.

"3" - LED/Beeper Control

For example, to program the input for LED control, the following sequence would be followed:



PROGRAMMING HINTS

Adding the Same Transponder More Than Once

If you add the same Transponder to the system more than once, the Transponder ID will be deleted from the previous User ID Number position and added to the newest User ID Number position.

Setting the Latch Timer

The latch timer controls the latch relay. The factory preset latch time is 1 second but it can be changed to any value from .25 seconds to 18 hours. If the latch timer is set to 0 seconds, this pulses the latch relay for 0.25 second, sufficient for most electric turnstiles. The beeper and LED are always fixed at one second.

Setting the Operating Mode

Four operating modes are possible. For normal operation select Mode 1; to temporarily lock out all transponders, select Mode 2; to hold the door open continuously select Mode 3; to function as a toggle switch select Mode 4.

BASIC OPERATION

To use a Key Tag with Radio Key® 100, simply hold your Radio Key® Transponder near the **Radio Key® 100 Unit**. The **Radio Key® 100 Unit** generates an RF field, which causes the Key Tag to transmit a unique Transponder ID Number back to the Unit.

If the Transponder ID Number is stored in memory, the latch relay is activated, unlocking the controlled door or gate . A green light and a beep indicates that access is granted. If the Transponder ID Number is not stored in memory, the door or gate remains locked and a red light and beep indicate that access is denied. Otherwise the LED is normally off.

Remote open (Request to Exit) input

When the Remote open input is activated, the relay will activate. When the remote open input is deactivated, the relay will return to the inactive state after the latch timer times out. A green light and a beep indicates that access is granted. NOTE: Remote Open Input is disabled when the unit is configured for use with SecuRelay™.

Ordering Additional Transponders

If you need additional Transponders, please contact the dealer who sold you the Radio Key® 100 unit. Because Radio Key® transponders are uniquely encoded and do not use facility codes, you can buy them off-the-shelf from any Secura Key dealer. If you do not know who your dealer is, call Secura Key and we will recommend one near you.

WARRANTY (U.S. and Canadian)

“Secura Key products are warranted against defects in materials and workmanship for a period of 2 years from the date of purchase. Secura Key will replace any Secura Key manufactured product, except cards or tags, returned to us freight prepaid within the warranty period. This warranty does not include freight, taxes, duties, or installation expenses. THE WARRANTY SET FORTH ABOVE IS EXCLUSIVE AND NO OTHER WARRANTY, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED. SECURA KEY SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. The remedies provided herein are the buyers’ sole and exclusive remedies. In no event shall Secura Key be liable for direct, indirect, special, incidental or consequential damages (including loss of profits), whether based on contract, tort or any other legal theory.” Contact Secura Key for Export Warranty Policy.

SPECIFICATIONS

Models **Radio Key® 100** Control Unit

Physical

Depth	0.51" (1.30 cm)
Width	1.60" (4.06 cm)
Height	3.50" (8.89 cm)
Weight	2.88 oz. (81.65 gm)
Material	ABS
Color	Black

Power Requirements 5-14 VDC, 120mA

Wiegand Output Any Wiegand Format up to 40 bits
Maximum Distance: 500 Ft.- 5 or 6 conductor 20 gauge shielded cable

Outputs

SPST Solid State Relay, 1A max. @60 VAC or DC.
Normally open or normally closed (field programmable).
May also be used with SecuRelay™ intelligent relay module (sold separately).

Inputs

Programmable as Remote Open (requires contact closure);
Bicolor (Red or Green) LED Control or Buzzer/LED Control

Environment

Ambient Temperature	-40 to +70 C (-40 to +158 F)
Humidity	0% to 100%

Operational

Reading Distance

Molded Card: Up to 6" (15.24 cm)
Key tag & ISO Card: Up to 5" (12.70 cm)

User Capacity

100 key tags or cards (random numbered only)

Card/Key Tag Operation

Passive

Transmit Frequency

125 kHz

Memory

Non-Volatile

Latch Timer

Programmable

0.25 seconds to 18 hours
or Toggle Mode

Accessories

RK-PD1 Proximity Programming Deck

RK-HHP Hand-held Programmer

RK600-PS 9VDC, 200 mA, plug-in Power Supply,
120 VAC Input. For Access Unit Only.

SK-SR SecuRelay™ - Smart relay module, DPDT.

This product complies with UL 294 Standards and with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

CE 168 !

FCC ID: NNHRK-100M**INSTRUCTION TO THE USER**

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet of a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

DECLARATION OF CONFORMITY

We, Secura Key, A Division of Soundcraft Inc,
of 20447 Nordhoff Street, Chatsworth, CA 91311, USA

declare under our sole responsibility that the product

Radio Key 100M (RK-100M)

to which this declaration relates, is in conformity with the following standards and/or other normative documents.

EN 300 330, May 1999

ETS 300 683, June 1997

EN 60950: 1992 Incl Amdt 1-4, 11

We hereby declare that all essential radio test suites have been carried out and that the above named product is in conformity to all the essential requirements of Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10(5) and detailed in Annex IV of Directive 1999/5/EC has been followed with the involvement of the following Notified Body(ies):

BABT, Claremont House, 34 Molesey Road, Walton-on-Thames, KT12 4RQ

(name and address of Notified Body)

Identification mark: 0168 The equipment will also carry the
(Notified Body number) Class 2 equipment identifier



The technical documentation relevant to the above equipment can be made available for inspection on application to:

Vanhalme, Lieven Balwemsstraat 13, Industriepark Waggelwater,
8200 Brugge, Belgium

(name and address of EU representative)

Paul Chandler

(name)

Product Marketing Manager

(title)

Paul Chandler
(signature of authorised person)

11/30/00
(date)

User Information

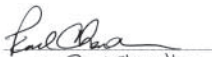
following statement will be provided with the equipment as required by Article 6.3 of the TE Directive, 1999/5/EC.

Secura Key Radio Key 100M is in conformity with all essential requirements of the R&TTE Directive (1999/5/EC).

product is marked with **CE168D** which signifies conformity with Class II product requirements specified in the R&TTE Directive.

following table indicates the areas of intended use of the equipment. Individual licences are not issued. For countries not included in this list, please consult the responsible Spectrum Management Agency.

Country of intended use					
EU	Yes	No	Non-EU	Yes	No
Austria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Iceland	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Belgium	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Liechtenstein	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Denmark	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Norway	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Finland	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Switzerland	<input checked="" type="checkbox"/>	<input type="checkbox"/>
France	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Germany	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Greece	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Ireland	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Italy	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Luxembourg	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
The Netherlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Portugal	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Spain	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Sweden	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
United Kingdom	<input checked="" type="checkbox"/>	<input type="checkbox"/>			


 Name: Paul Chandler
 Title: Product Marketing Mgr.

NOTES

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