R A D I O N I C S

Easikey Installation and Operation Instructions

Installation

Description

EK10 Door Controller

The Easikey EK10 Door Controller is capable of controlling two readers with up to 99 users, including up to three master keys. Each key can be assigned up to three access levels (to open Door 1, Door 2, or both doors) . Hold door open time can be set for up to 48 seconds. Lock modes (fail-safe and fail-secure) are selectable. Reader 1 can be used as an on/off switch for lights or other devices.

The controller can be mounted to the wall using a surface-mount mounting plate (included) or by clipping it to an optional DIN Rail with Easikey DIN clips (also included).

The controller is fitted with removable terminal blocks. These terminal blocks should be removed when connecting cables. Do not unplug the terminal blocks while the controller is powered. This could cause a malfunction and possible damage to the controller.

Keys

EK71 Electronic Keys are uniquely programmed during manufacturing with a multi-character code, randomly selected from 68 billion possible combinations, ensuring maximum integrity. The coding method ensures the uniqueness of each key and thus eliminates the need for system or site coding.

The keys are fully encapsulated, waterproof units with casings designed from high impact plastic and suitable for attaching to a key ring, bracelet, neck chain, etc.

Readers

Three types of readers can be used with the Easikey system:

- **EK15 Mullion Reader:** Indoor/outdoor, 1 inch (25 mm) read range.

- **EK20 Vandal Resistant Reader:** Indoor/outdoor, vandal resistant, $\frac{5}{16}$ inch (8 mm) read range.

- **EK25 Door Panel Reader:** For incorporating into other panels such as for a door entry system. $\frac{5}{16}$ inch (8 mm) read range.

Installation instructions for the EK25 Door Panel Reader are included with the reader.

Materials Needed

- Unshielded, 4-conductor alarm cable, 22 AWG [6-conductor if using Request-To-Exit (R.T.E.) device].
  Note: Shielded cable may be necessary under extreme AC induction conditions.
- Silicone sealant (outdoor use only).
- Four #8, bevel head, tamper resistant screws (EK20 only).
- Lock strikes (as required, two max.)
- 1 Amp fuses (as required, two max.)
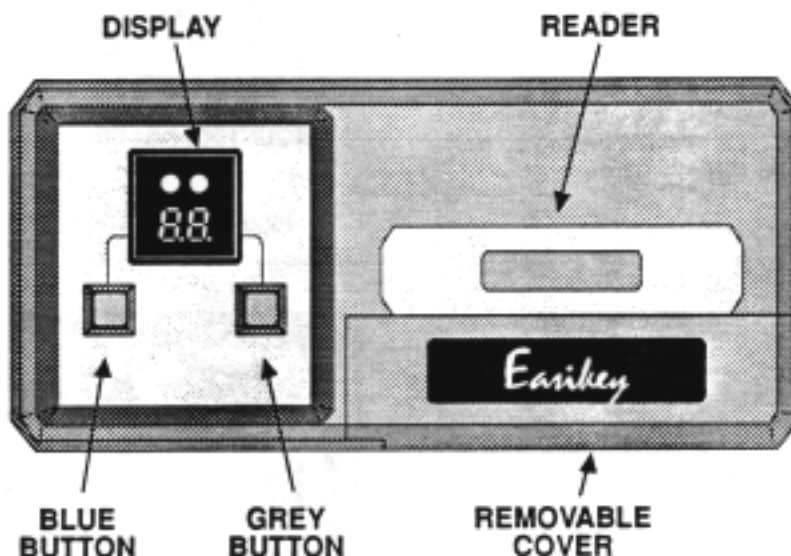- 1N4004 suppression diodes for each lock if DC lock releases are being used. (Refer to *Connecting Power*.)

DISPLAY   READER

BLUE BUTTON   GREY BUTTON   REMOVABLE COVER

Figure 1: Easikey EK10 Door Controller

Mounting the Readers

Use 4-conductor, unshielded, 22 AWG alarm cable (6-conductor if R.T.E. devices are used). Up to two readers can be connected to one controller. Each reader can be installed up to a maximum distance of 300 feet (100 m) away from the controller.

The distance between readers must be greater than 12 inches (300 mm).

EK15 Mullion Reader

Follow the instructions below to install one or two EK15 readers:

1. Using the mounting plate (see Figure 2) as a template, mark the location of the mounting holes on the wall.

2. Thread the wires through the opening in the back of the reader mounting plate.

3. Following the connections in Table 1, connect each reader to the alarm cable leading back to the controller.

4. Apply a sparing amount of silicone sealant to each individual terminal on the back of the EK15 including any exposed wire. Allow to dry before powering up the reader.

5. Using the #6 countersunk wood screws (included) secure the mounting plate to the wall.

6. Snap the reader onto the mounting plate.

EK20 Vandal Resistant Reader

Follow the instructions below to install one or two EK20 readers:

1. Following the connections in Table 1, connect each reader to the alarm cable leading back to the controller.

2. In order for the reader to lay flat against the wall, cut a 2" x 2" x 1/2" deep recess (50 mm x 50 mm x 13 mm), where the reader is to be mounted. This will provide mounting clearance for the terminals on the back of the reader.

3. If the reader is going to be used outdoors, apply silicone sealant as shown in Figure 3.

4. Using four, #8, bevel head, tamper resistant screws (not included), secure the reader to the wall.

Wiring the Readers to the Controller

To begin wiring the EK10 Controller, remove the wiring cover on the front panel by pressing firmly on the bottom right side of the cover and pulling it toward you. Lift off the cover to display the terminal blocks (refer to Figure 4).

If you are using the Mounting Plate to mount the door controller (refer to **Mounting the Controller**) make sure you thread the wires through the mounting plate before connecting them to the controller.

The wires can also be thread up through the bottom of the controller by removing the recessed wiring knockout from the bottom of the terminal strip cover (Figure 5).

Following the connections in Table 1, connect one or two readers to the Easikey controller as shown in Figure 6, 7, or 8 as applicable system you are installing.

Note: Terminals **R1** (Reader 1) and **R2** (Reader 2) are used for installing a Request-to-Exit (R.T.E.) device if applicable.
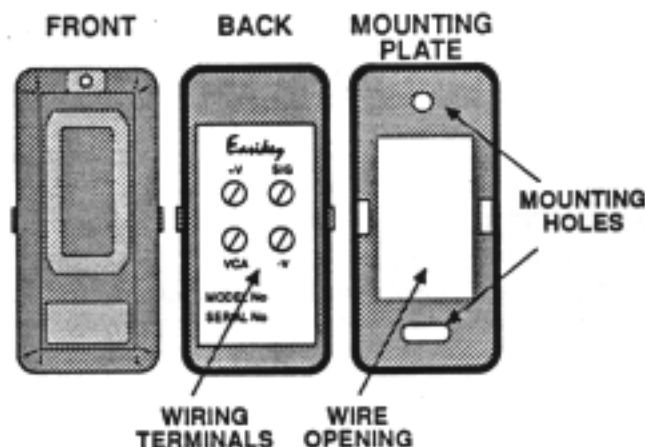

Figure 2: EK15 Mullion Reader

Controller Reader 1 Connections	Controller Reader 2 Connections	Reader Terminal	Wire Color
+V1	+V2	+V	Red
S1	S2	SIG	Yellow
A1	A2	VCA	Green
-V1	-V2	-V	Black
R1	R2	-V	Brown

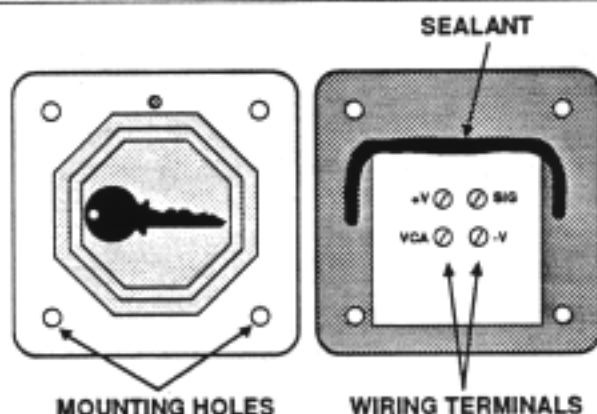Table 1: Reader to Controller Wiring Configuration
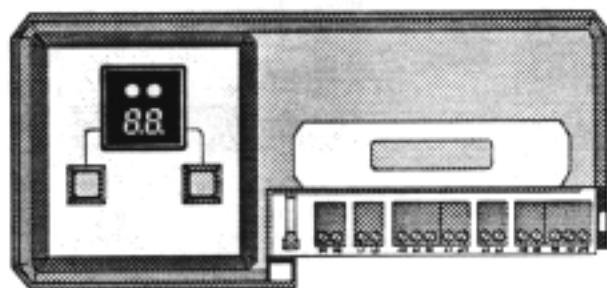

Figure 3: EK20 Vandal Resistant Reader

Figure 4: EK10 Terminal Blocks

Installing an Electric Lock

Select an appropriate electric lock for your application. For recommended wire sizes and power requirements of the lock you are installing, refer to the lock release manufacturer's instructions. If a diode is included with the electric lock, install according to the manufacturer's instructions.

Connecting Power

The Easikey controller operates on 12V nominal AC or DC. The controller can also be used to provide power to either an AC or DC lock release or the lock can be powered separately. Connect the controller using one of the following power supply options:

Option 1:
A single 12VAC, (@16VA) supply and 1 Amp AC lock release provides for the lowest cost system.

Option 2 (Figure 6):
12VDC, 1.3 Amp power supply for the controller, reader(s) and the DC lock release. Many power supplies are available which simply plug into a standard 110V socket outlet.

Option 3 (Figure 7):
12VDC, 1.3 Amp power supply for the controller reader(s) with a separate power supply for the lock.

Important Notes:

- If you use a DC lock strike you must put a 1N4004 suppression diode (not included) across the lock release. If you use a magnetic lock use a M.O.V. instead of a diode.

- If you are installing a separate power supply for the lock, it is recommended that a standard 1 Amp fuse be installed between the power supply and the lock.

- The controller has a 12V, 1 Amp quick blow fuse under the terminal cover. It blows if the current is more than 1 Amp.

- Addition of a battery backup provides a high level of system integrity.

- The R.T.E. device must be normally-open.

For additional power requirements when installing more than one lock, refer to Figure 8.

Battery Backup

If you are installing a battery back-up, you can work out the size of battery you need from this formula:

$$Ah = [0.14 + (NR \times 0.06) + LC1 + LC2] \times HR, \text{ where}$$

Ah= Battery capacity required (in amp hours)
NR=Number of Readers.
HR=Hours of backup time required.
LC1=Lock 1 current (in mA)
LC2=Lock 2 current (in mA)
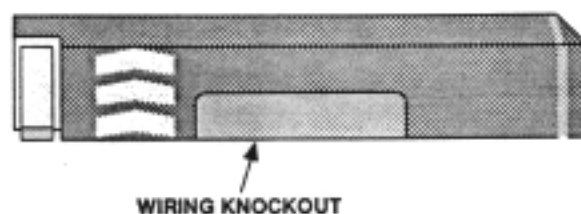

☼ 1N4004 Supression Diode
〜 1 Amp Fuse

WIRING KNOCKOUT

Figure 5: Terminal Strip Cover

Power Supply 1.3Amps, DC

+V
VCA
SIG
R.T.E
-V

Reader 1

Lock Strike
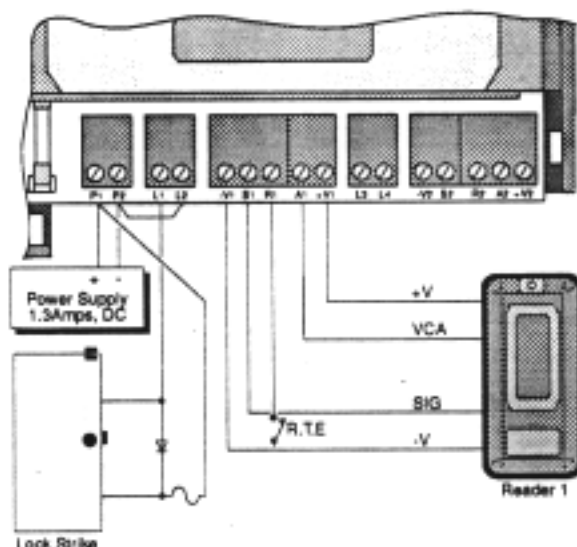
Figure 6: DC Lock Release Using Controller Power Supply

Power Supply 1.3Amps, DC

+V
VCA
SIG
R.T.E
-V

Reader 1

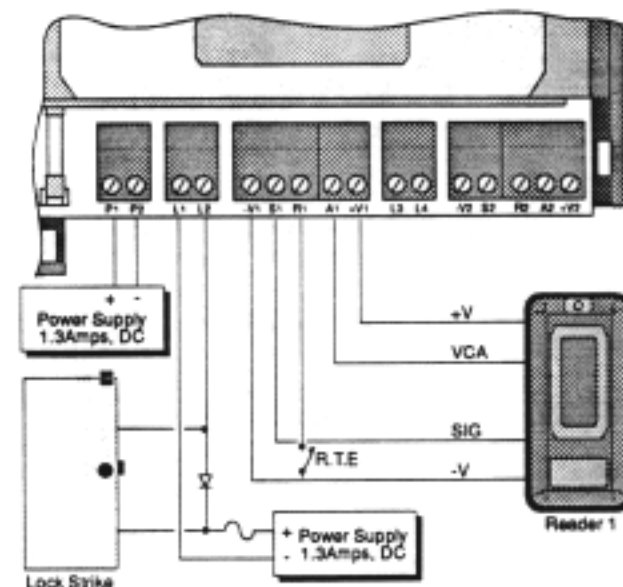+ Power Supply - 1.3Amps, DC

Lock Strike

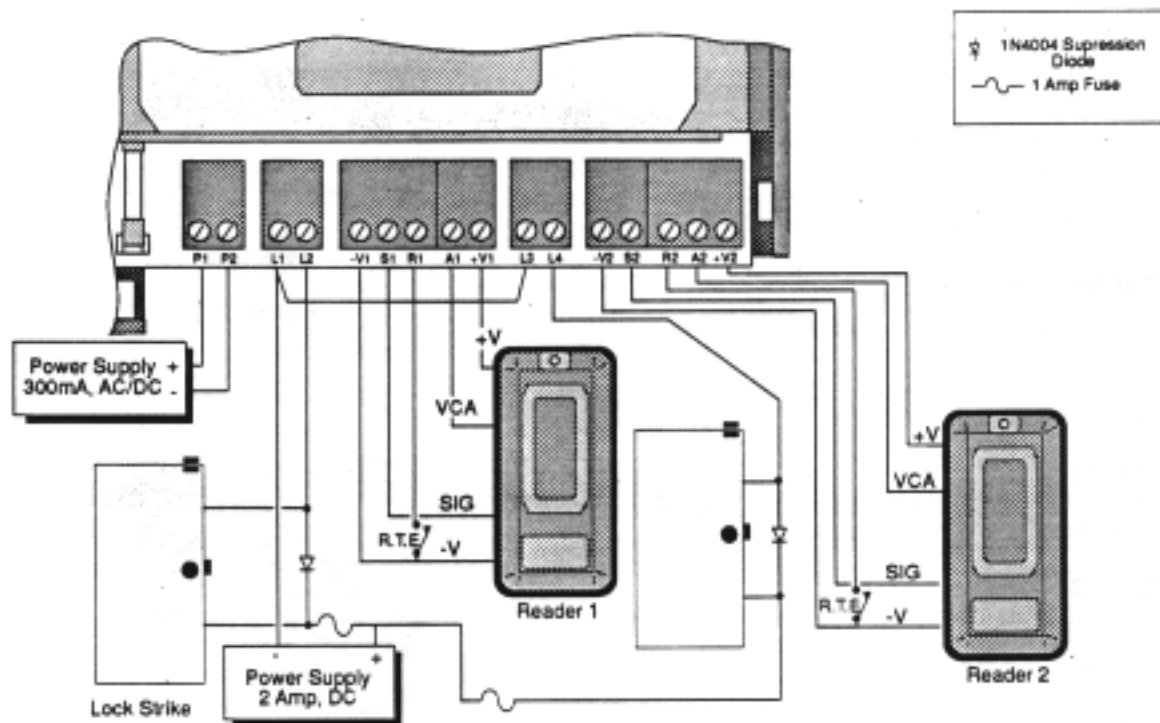**Figure 7: DC Lock Release Using Separate Power Supply**

Figure 8: Two DC Lock Releases Using Separate Power Supply

Mounting the Controller

The controller can be mounted one of two ways: directly to the wall using the Easikey clip-on mounting plate, or on an optional DIN rail.

Mounting Plate

The Mounting Plate must be mounted on a flat surface.

1. Using the mounting plate as a template, accurately mark the location of the mounting holes on the wall (Figure 9).

2. Thread any necessary wires through the back of the mounting plate.

3. Using the #6 countersunk wood screws (included) secure the mounting plate to the wall. Do not overtighten.

4. Clip the Easikey controller to the backplate.

DIN Rail

A standard DIN 46277-3 rail can also be used to mount the controller (see Figure 10). The mounting plate is not used for this installation.

1. Insert the bottom retaining arm of one DIN clip (included) into the bottom opening on the back of the controller.

2. Gently press the top of the retaining clip and ease the top retaining arm into the back of the controller.

3. Repeat steps 1 and 2 to attach the second DIN clip.

4. Insert the DIN rail into the bottom of the clip.

5. Gently pull the top of the clip back slightly (not too far) while pushing in on the controller.

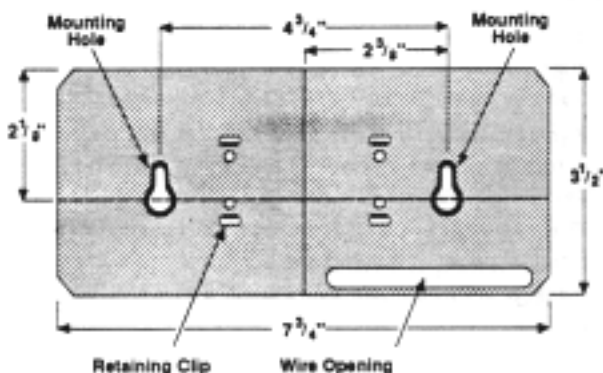6. Ease the DIN rail into the groove in the top of the clip.
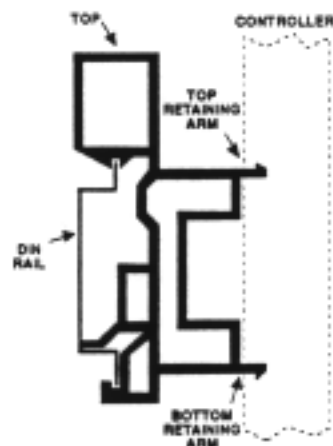

Figure 9: Using the Mounting Plate

Figure 10: Using the DIN Rail (Side View)

Operation

Assigning Master Keys

A master key is used to program Easikey and to add or delete electronic keys. Up to 3 master keys may be programmed. All master keys should be kept in a secure area since they can be used to make changes to the controller program. Because of this reason and the possibility of loss, the master keys should not be used as regular electronic keys.

If a master key is used to initiate an event, e.g., Set Lock Times, the same master key must be used to save the changes. The red and green lights flash alternately if a different master key is used. Once a programming session is ended, a different master key cannot be presented to the controller reader within one second.

Programming the controller does not interrupt normal operation of the readers.

Note: The programming mode "times out" after 15 seconds if no activity is detected. If this happens you must begin again from step 1.
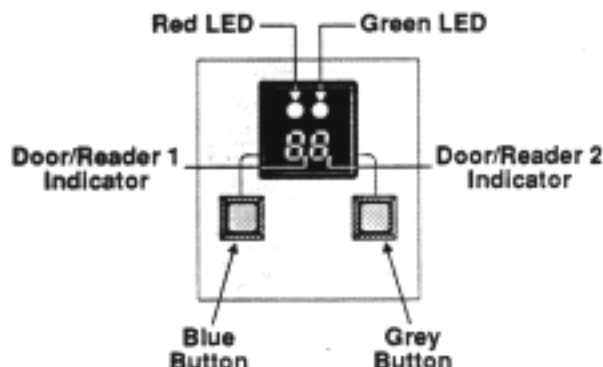

Figure 9: EK10 Door Controller Display and Controls

Complete the following steps to assign master keys:

Warning: Step 1 below clears the Easikey memory, including the Master key and regular electronic key database. Power can be removed from the controller without losing any memory - just don't hold down both buttons when you are putting on the power again.

1. Hold down BOTH the blue and grey buttons AT THE SAME TIME AS you switch on the power to the unit.

   Red and green LEDs come on. The number 03 is in the display (the maximum number of master keys you can have).

2. Press the grey button to enter in the number of master keys you want (1, 2 or 3). The display shows the number of master keys you have selected.

3. Press the blue button to confirm the number of master keys selected.

   The display goes out.

4. Present the first master key to the reader on the front of the controller. The display flashes the ID number assigned to that key.

   Master key #1 has access to both Door 1 (left decimal) and Door 2 (right decimal) as shown in the display. This access assignment cannot be changed.

5. When the number of the previously presented key disappears, present the next master key (if applicable). The display flashes the ID number assigned to that key.

6. Both of the decimal points in the display are lit indicating the master key has access to both doors.

   Select which door(s) this master key is allowed to access:
   Blue button= selects/deselects Door 1
   Grey button= selects/deselects Door 2

   Both the red and green LEDs flash if a previously assigned master key is presented.

7. Repeat steps 5 and 6 for the third master key if necessary.

8. Present the FIRST master key assigned to the controller reader again to save the changes.

   The display goes out.

Entering the Lock Release Time

Lock Release Time is used to determine how long the door will remain unlocked after a key has been presented. The release time can be set for up to 48 seconds, in intervals of one second.

For locks that are normally closed (fail-secure) enter a Lock Release Time of up to 48 seconds. For example, if you want the door to remain open for 8 seconds, enter 8.

For locks that are normally open (fail-safe locks which require power to stay closed), you must add 50 to the release time. For example, if you want the door to have a release time of 8 seconds, enter 58. The maximum number that can be entered is 98 (or 48 seconds).

A Lock Release Time of 00 disables the reader.

Note: If an R.T.E. button in held down, the Lock Release Time is overridden.

Setting Door 1 Lock Release Time

1. Present a master key to the controller reader.

   The key number appears and the red LED is lit.

2. Press the blue button once.

   The red LED flashes and the current Lock Release Time for Door 1 is shown.

5

Setting Door 1 Lock Release Time (cont.)

3. Select the time by pressing the blue button (for ten second increments) and the grey button (for second increments).

4. Present the same master key to the controller reader again to set the time.

    The display goes out. The Lock Release Time for Door 1 now operates for the length of time you have chosen.

Setting Door 2 Lock Release Time

1. Present a master key to the controller reader.

    The key number appears and the red LED is lit.

2. Press the grey button once.

    The green LED flashes and the current Lock Release Time for Door 2 is shown.

3. Select the time by pressing the blue button (for ten second increments) and the gray button (for second increments).

4. Present the same master key to the controller reader again to set the time.

    The display goes out. The Lock Release Time for Door 2 now operates for the length of time you have chosen.

Adding Keys

If no action is taken for more than fifteen seconds when adding keys, the system "times out." You must begin again from step 1 or 4 as appropriate.

If you try to add in a key that is already in, the key number flashes and the doors it is allowed to open is displayed.

1. Present the new key to the controller reader.

    Once read, the key is assigned an ID number. Both of the decimal points in the display are lit indicating the user has access to both doors. The green LED is also on.

2. Select which door the user is allowed to access.

    Blue button= selects/deselects Door 1

    Grey button= selects/deselects Door 2

    To select both doors, leave both decimal points on.

3. Present a master key to the controller reader to confirm the added key.

    The display clears leaving the decimal point(s) and the green LED on for 15 seconds.

4. To add any additional keys repeat steps 1-3. The ID number increases with each key added.

Note: The master key does not have to be presented after the last key was entered. However, if you want to exit before the time-out expires, presenting the same master key exits you from the Add mode.

Deleting Keys

When You Have the Key

1. Present the existing key to the controller reader.

    The key ID number is displayed, the red LED comes on, and one or both decimals light depending on which door(s) the key can open.

    The key is ready to be deleted.

2. Present a master key to the controller reader to confirm deletion. (If you do not put the master key up within 15 seconds the system "times out." If this happens start again).

    The display flashes for two (2) seconds then clears. The key is now deleted.

When You Do Not Have the Key

1. Press the grey button

    The following display appears:

2. Press the blue button (tens) and the gray button (single digits) to select the required key ID number.

    Note: A flashing key number indicates that the number is unassigned.

    When the key ID number is entered, one or both of the decimals light depending on which door(s) the key can open.

    The key is ready to be deleted.

3. Present a master key to the controller reader.

    The display flashes for two (2) seconds then clears. The key is now deleted.

Initiating the Relay On/Off Function

This feature allows Reader 1 to be used as a switch which is toggled on and off by presenting a key to the reader. Reader 2 cannot be used for this function.

As a switch, it can be used to turn lights on and off, arm or disarm intruder alarm systems, or temporarily enable or disable a door lock.

The reader can only control one relay at a time, whether it is a door, light, or alarm system.

Users with access to Reader 1 can enable/disable the relay functions with their keys. The R.T.E. device is disabled when the Relay On/Off Function is enabled.

Initiating the Relay On/Off Function

1. Present a master key to the controller reader.

   The key number appears and the red LED is lit.

2. Press the blue button once. The current Lock Release time is displayed, the decimal points disappear, and the red LED flashes.

3. Enter the number 99 by pressing the blue (tens) and grey (ones) buttons.

4. Present the same master key to the controller reader again to enable the Relay On/Off function.

   The light on Reader 1 comes on.

Using the Relay On/Off Function

Present a key to the Door/Reader 1 (the key must have been assigned access to Door 1) to toggle the Relay On/Off function. If the reader light is on, the Relay On/Off function is on. If the reader light is off, the Relay On/Off is off.

Removing the Relay On/Off Function

1. Present a master key to the controller reader.

   The key number appears and the red LED is lit.

2. Press the blue button, 99 appears in the display. The red LED flashes.

3. Press the blue and/or grey buttons to set a Lock Release time for the reader.

4. Present the same master key to the controller reader again to disable the Relay On/Off function.

   The light on Reader 1 turns off. The controller display turns off.

Displaying the Last Five Users

To see the last 5 keys which have been used:

1. Press the blue button.

   The last key used is displayed. The decimal indicates which door was used.

2. Press the blue button repeatedly to display the last keys used on either door. To exit the feature, let the display time out or continue until the display goes blank.

Transferring Data Between Easikey Controllers

This function is used to send data from one Easikey controller to another when more than one controller is being used and the same keys/users are to use both systems.

Controller Setup

If the sending unit has readers and/or locks connected, both the sending and receiving units need power. If the sending unit does not have readers and locks connected, the receiving unit does not need power.

Transferring Data:

1. Power down the sending controller.

2. Connect the wires between Reader 2 connections on the sending controller, and Reader 2 connections on the receiving controller as shown in Table 2.

Sending Controller Connections	Receiving Controller Connections
-V2	-V2
S2	A2
A2	S2
+V2	+V2

Table 2: Controller Transfer Connections

3. Power up the sending controller.

4. Present a master key to the sending controller reader and press both buttons at the same time.

   The display goes blank then the green light appears. On the receiving unit, the numbers 00 and the red light appear in the display.

5. Press the blue button on the sending controller. The lights on both controllers flash and each display counts down from 10 to 1.

6. When the transfer is complete, the lights on both controllers stop flashing and both displays show the same number for 15 seconds before going blank. If the same number is not shown on both controllers before going blank, start at step 4 and repeat the above process until you get the same number for 15 seconds.

Initial System Check

When you have completed the Easikey installation, you will want to test it before handing the system over to your customer. To check out the system:

1. Assign the master keys needed to the system (see *Assigning Master Keys*).

2. Set the lock times required for Door 1 (and Door 2 if fitted) for the type of release (fail safe or fail secure) (see *Entering the Lock Release Time*).

3. Check the reader(s) and lock(s) work by presenting the Master Key(s) to the reader for Door 1 and then to the reader for Door 2 (if applicable).

   Ensure the door strikes work and the green light on the reader is illuminated on for the Lock Release Time you programmed for each door.

4. Add and delete keys (refer to *Adding and Deleting Keys*) and check that "Last Five Users" works (see *Displaying Last Five Users*).

5. If the Easikey system does not work correctly, check Table 3 below.

6. Check the voltage with the power applied to the door releases and the controller display on. If the readings are not within the following ranges refer to Table 3.

   - Power Input at Controller (P1 and P2): 10-12VAC or 10-16VDC@ 190 mA (no reader).

   - Reader Supply at Controller (-V1 and -V2 for reader 1 and -V2 and -V2 for Reader 2): 10-16VDC

   - Reader Supply at Reader: 9-16VDC, 60 mA

Easikey Paks

EK80 DoorPak

   1 X EK10 Door Controller
   1 X EK15 Mullion Reader
   3 X EK71 Electronic Keys

EK90 Vandal DoorPak

   1 X EK10 Door Controller
   1 X EK20 Vandal Resistant Reader
   3 X EK71 Electronic Keys

Symptom	Possible Cause	Cure
Easikey not working	• Power supply not connected.	Apply Power.
	• Fuse blown.	Check wiring, then replace fuse.
Appears to act normally, but does not respond to any keys.	• Reader wiring is incorrect	Check wiring (see **Mounting the Readers** and **Wiring the Readers to the Controller**).
	• Keys not added into system	Add keys into controller (see **Adding Keys**).
Reader 1 working but Reader 2 inactive.	• Lock 2 release time set to 0 seconds.	Follow lock release time setting procedure and select a value other than zero (see **Entering the Lock Release Time**).
	• Reader wiring incorrect	Check wiring (see **Mounting the Readers** and **Wiring the Readers to the Controller**).
Door lock remains open.	• Door lock settings for opposite power sense e.g. fail safe instead of fail secure.	Reprogram door lock setting (see **Entering the Lock Release Time**). Check that the R.T.E. button is not held down.
Neither reader operating properly.	• Wiring incorrect	Check wiring diagram in the guide (see **Figures 6, 7,** or **8**).
	• Lock Release Time too short.	Check lock time settings (see **Entering the Lock Release Time**).
Display counts repeatedly 00-99.	• Internal dip switch incorrectly set.	Switch all 4 switches to off (towards main fuse).
Malfunction when lock activated.	• Inadequate power supply.	Replace with correct supply

Table 3: Easikey Troubleshooting Chart