HOMEGUARD

FINGERPRINT TERMINAL INSTALLATION GUIDE

MAY 2010
VERSION 1.02

Legal Information

No part of this document may be reproduced or transmitted in any form or by any means, electronic and mechanical, for any purpose, without the express written permission of BioGuard Ltd.

Copyright

Disclaimer

This manual is provided for information purposes only.

All information included herein is subject to change without notice. BioGuard is not responsible for any changes, direct or indirect, arising from or related to use of this manual.

Table of Contents

1 OVERVIEW 5
2 PHYSICAL DESCRIPTION 6
2.1 Product Content 6
3 INSTALLATION PROCEDURES 7
3.1 Installing the Mounting Bracket 7
3.2 Installing the Device 8
3.3 HomeGuard Connector Interface 9
3.4 Wireless and Wire-line Options 10
3.5 Installing the Wireless Relay 11
3.5.1 Wireless Relay Pinout 11
3.6 Installing the Wired Relay 12
3.7 Power Supply Installation 13
3.8 Power Up 13
4 USER REGISTRATIONS 14
4.1 Front Panel Description 14
4.2 Enrolling the First Administrator 15
4.3 Testing and Calibration 16
4.4 Advanced Configuration Features 16
4.5 Program Mode Operation 17
4.6 System Reset 18
5 TROUBLESHOOTING 19
6 SPECIFICATIONS 20

Safety Precautions

	**Caution** Keep the fingerprint contact area clear and uncontaminated by dirty hands or damaged by foreign objects or materials. Failure to do so may affect fingerprint recognition performance or cause malfunction.
	Do not forcibly press the buttons of the product. Avoid any contact with any sharp objects to the device.
	Do not clean the device with any form of liquid other then isopropyl alcohol; use only a soft, damp cloth.

1 Overview

Simple, Cost-Effective Access Control Solution for Homes and Offices

HomeGuard™ is a simple-to-use, easy-to-install and affordable access control system, designed specifically for homes and offices. HomeGuard™ utilizes BioGuard's best-in-class fingerprint identification system to ensure unsurpassed security and ease of use.

With HomeGuard, you'll never have to worry about your child losing a key, or deal with the hassle and expense of changing all your door locks. Offices benefit from unmatched security for their business assets, as well as user-friendly and convenient management features.

Key Benefits

- "Do-it-yourself" design ideal for home and office use
- Simplicity of operation and user-friendliness
- Easy and fast installation – typically less than 30 minutes
- Unsurpassed accuracy and reliability using BioGuard/UPEK best-in-class fingerprint identification technology
- Safe, environmentally-friendly low voltage device

Cutting-Edge Fingerprint Identification Technology

HomeGuard™ implements BioGuard's innovative capacity fingerprint identification technology, which reads the fingerprint from the live tissue layer, and is therefore unaffected by skin condition. It performs high-speed, one-to-many (1: N) matching, ensuring the highest levels of security and user-friendliness.

This self-contained terminal can hold and identify up to 100 fingerprint templates. HomeGuard™ can be managed locally by the designated administrator, including enrollment and deletion of access privileges for users.

2 Physical Description

2.1 Product Content

The HomeGuard system contains:

- **Fingerprint Terminal**

- **External 9V V power supply for HomeGuard fingerprint device**

- **Wireless RF Receiver with Relay Controller**

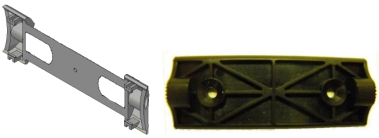
OR

- **Wired Encrypted Relay Controller**

- **External 12V power supply for the RF/Wired controller**

- **Communication Cable**

- **Mounting Bracket and Wall Mount**

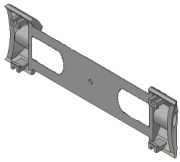


- **Product CD including Installation Guide and Users Manual**

3 Installation Procedures

The hardware to mount the HomeGuard device consists of the wall mount and the mounting bracket as shown below.

Wall Mount



Mounting Bracket

Note: The mounting bracket is generally attached to the HomeGuard device in the factory before being shipped.

3.1 Installing the Mounting Bracket

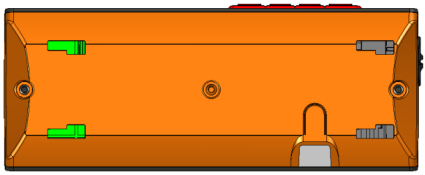
The mounting bracket is attached to the HomeGuard device before being attached to the wall mount.

To attach the HomeGuard unit to the mounting bracket:

1. Insert the mounting bracket into the rear panel of the HomeGuard device and slide the mounting bracket to the left.

The screw hole located in the middle of the mounting bracket must line up with the screw hole on the rear panel of the HomeGuard unit. The rear panel holds the cable interface and the clips to slide the HomeGuard terminal into the wall mounting bracket.

The rear panel is shown below:



2. Insert the screw in the mounting bracket and tighten.

3.2 Installing the Device

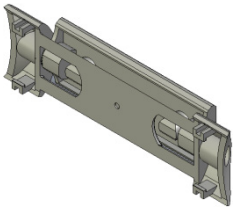
The HomeGuard device is attached to the wall mount.

To attach the HomeGuard device to the wall mount:

1. Determine a suitable place for the unit.
2. Attach the wall mount bracket to a wall using the screws provided with the unit.

3. Place the mounting bracket on the HomeGuard device on the wall mount and adjust the angle of the support arm.
4. Tighten the screws on the left and right sides of the mounting bracket.

The figure below shows the mounting bracket attached to the wall mount.



3.3 HomeGuard Connector Interface

The HomeGuard fingerprint terminal is connected to an external 9VDC power supply and to the wired relay device. The wired relay controls the access point such as a door lock. The table below shows the wires that are connected to the HomeGuard unit.

Colour	Description	Connect to
Red	+9VDC Positive	External 9V DC Power Supply
Black	9VDC ground	
White	Data signal	Wire-line Lock Controller
Blue	Data common GND	

An optional communication cable may be provided..

3.4 Wireless and Wire-line Options

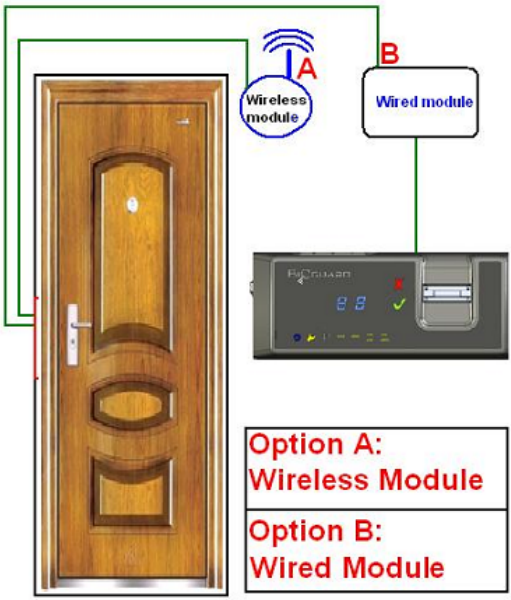
The fingerprint terminal can be connected to the door lock over a wireless link or via wire-line.

The transmitter is already installed within the device in the wireless version.

- The receiver should be installed in a safe location behind the door and close to the door lock.
- The wireless reception range between the transmitter and the receiver is approximately 15 meters.

Concrete walls or tall objects in the transmitter area may cause range reduction.

The installation diagram below illustrates both the wired and wireless options.



3.5 Installing the Wireless Relay

The Wireless Relay allows the fingerprint reader to control an access point by closing a relay whenever a user is identified correctly. The Wireless Relay contains the wireless receiver unit.

To install the wireless relay:

1. Use the supplied 7-wire cable to connect the Wireless Relay to the door lock, the 12VDC external power supply, and to an Exit button (if needed).
2. Attach the relay/receiver to the wall or locate it in a hidden place (on the ceiling or in a closet).

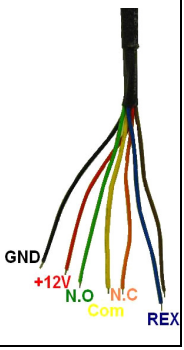
An exit button connection is also possible to enable exiting from the inside.

Note: The exit button trigger length has its own timer.

3.5.1 Wireless Relay Pinout

The pinout for the Wireless Relay connector is shown in the table below.

Wiring Pin-out diagram (wireless version)

Color	Designation	Connect to:	
Red	+12VDC Positive	Power supply cable	
Black	12VDC ground		
Green	Normally Open	Door lock (dry contact relay)	
Yellow	Common		
Orange	Normally Closed		
Blue	Request Exit	Exit button	
Brown			

3.6 Installing the Wired Relay

The Wired Relay allows the fingerprint reader to control an access point by closing a relay whenever a user is identified correctly.

To install the wired relay:

1. Insert the cable into the sleeve and attach the connector end to the relay unit.
2. Connect the cable wires to the fingerprint reader and the door lock.
3. Install the relay unit in a suitable place, hidden from view.

Wired Relay

Use the **12V DC** external power supply included in the package.

The wired relay pinout is listed below:

Connection HomeGuard ISR Relay (Wired Version)			
Pin	**Color**	**Function**	**Wire Label**
1	Red	+12V Input (connect to the supplied 12VDC supply)	
2	Black	Normally Closed - In	NC 106
3	Black	Normally Closed - Out	NC 106
4	White	Data wire Connect to white wire of the fingerprint terminal	
5	Black	GND (connect to the supplied power supply)	GND
6	Black	GND (connect to the fingerprint device ground) (Common ground)	GND
7	Black	Normally Open - In (connect to GND of 12V supply)	NO 107
8	Black	Normally Open - Out (connect to door lock)	NO 107
9	Blue	Not connected	
10	Black	Not Used	

3.7 Power Supply Installation

The power supply provides 9VDC with a maximum current of 2Amp.

Note: Connection of the power supply to the electricity outlet must be the last installation action (after installation is completed).

To install the 9V power supply:

1. Connect the power supply cables to the power cables of the fingerprint terminal.
2. Insert the power supply into the main wall outlet.

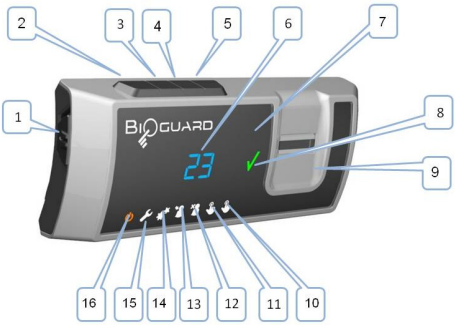
3.8 Power Up

After power up, the blue power indicator on the device lights up, all the LEDs blink once, and a buzzer sounds. The digital display shows 00 which is the number of users stored on the device. If the device is empty and does not have an administrator associated with it, the **Slide Administrator** LED lights up indicating that the administrator fingerprint must be enrolled before using the device.

4 User Registrations

4.1 Front Panel Description

The front panel of the device is the interface between the user and the fingerprint system.



The callout numbers in the illustration refer to the sequence numbers in the following table.

No.	Icon	Colour	Description
1	Slide switch		**Slide switch** **Down** = Enrolment, Normal operation **Up** = Delete users
2	Push Button		**Program Button**
3	Push Button		**Scroll Up** Used mainly in Program mode
4	Push Button		**Scroll Down** Used mainly in Program mode
5	Push Button		**Enter** Press to confirm operation
6			**Digital Display**
7		Red	**Fail** indicator
8		Green	**Acknowledge** indicator
9			**Fingerprint sensor**
10		Blue	**Slide Administrator**
11		Blue	**Slide User**
12		Red	**Delete** operation
13		Red	**Enroll** operation
14		Red	**Program Mode**
15		Red	**Service Mode (not used)**
16		Blue	**Power** indicator

4.2 Enrolling the First Administrator

The administrator must be enrolled before enrolling any user.
The administrator can be any person authorized by the system owner.

The administrator is the only person that manages the system to enroll or delete users and to control the programming configuration of the unit.

After the first user (the administrator) is enrolled, it is possible to determine the privilege level of each user (administrator user or regular user).

To enroll the Administrator:

1. Move the slide switch downward to **Enroll** mode.
2. Press and release the **Program** button.

The **Enroll**  and **Slide Administrator**  LED indicators light up.

A 00 is displayed on the digital display indicating 0% of fingerprint data has been captured.

3. Slide the administrator finger to be enrolled over the sensor repeatedly at maximum intervals of 12 seconds until 100% fingerprint identification is achieved.

The HomeGuard sensor requires 100% fingerprint template data. Each successful swipe will increase the digital display according to the percentage of the acquired data. For example: 01 on the display means 10% of data was acquired, 04 means 40% etc.

When the process is complete (100% finger template is achieved) the display blinks showing 00, which is the index number of the administrator user in the database.

The green acknowledge indictor displays for a second along with a buzzer sound.

The system returns to idle mode and the display shuts down.

Note: Unsuccessful enrollment will require repeating this process.

4.3 Testing and Calibration

The HomeGuard device contains a number of advanced program mode configuration features to meet the optimum user configuration needs.

These options are managed by the System Administrator.

4.4 Advanced Configuration Features

The program mode operation's advanced configuration features are detailed below.

#	Description	Function
00	Enter Service mode.	Enables sending the pre-defined neutralize code.
01	Disable service activation option.	The user can no longer activate the service mode.
02	Enable service activation option.	The user can now activate the service mode (Program menu 00).
03	Pulse length **(**to be used by the system installer only**)**.	Sets the hook-up time elapse to send the neutralize code. Default configuration is 5 sec.
04	Pulse type **(**to be used by the system installer only**).**	Set the signal method to neutralize the immobilizer (method 5 is set by default).
05	Program mode permission authorization.	Enables all registered users on the device to enter program mode.
06	Disable Program mode permission.	Revokes all users' permission to enter the device programming mode (only the administrator is now allowed to enter the programming mode).
07	Administrator privileges assign/unassign.	Administrator can assign more administrator users to the device or remove administrator privileges from the device.
08	Device initialization.	Erase all templates from the device.
09	Define neutralizing code.	Enter the desired code to neutralize the system in Service mode.

4.5 Program Mode Operation

To enter the program mode:

1. Press and hold the **Program** button for 5 seconds until the buzzer sounds.

The Program Mode  LED blinks slowly and the Slide Administrator  LED lights up indicating that administrator confirmation is required.

2. The administrator slides his finger over the sensor once, to confirm programming mode.

The first programming menu of 00 is displayed.

3. Use the **Scroll Up** and **Scroll Down** buttons to select the required menu option, and press **Enter** to confirm your menu selection.

4.6 System Reset

Only the administrator can reset the system.

To initialize (reset) the system:

1. Press and hold the **Program** button for 5 seconds until the buzzer sounds.

The Program Mode  LED blinks slowly and the Slide Administrator  LED lights up indicating that administrator confirmation is required.

2. The administrator slides his finger over the sensor once, to confirm the system entrance to programming mode.

The first programming menu of 00 is displayed.

3. Use the **Scroll Up** button to select the initializing menu option, (menu number 8) and press **Enter** to confirm.
4. The administrator slides his finger over the sensor again to complete the initialization process.

Note: System reset erases all fingerprint templates from the device database, but does not affect the configuration changes.

5 Troubleshooting

The following troubleshooting table lists potential problems with their possible causes and their possible solutions.

Trouble	Symptom	Action/Remedy
Power	The blue power indicator does not light up.	Check the power supply, cables, connections and fuse.
Enrollment	The digital display does not increment at fingerprint scanning and the green acknowledge indicator does not light up.	Check the following: ▪ The slide switch is "Up"? Push it down. ▪ Make sure the device is in enrolling mode. ▪ Make sure Admin was recognized before trying to enroll the user. ▪ Clean the surface of the sensor and try again.
Fingerprint	The fingerprint has been enrolled but is not acknowledged.	▪ Make sure that the correct registered finger is swiped. ▪ Make sure that the swipe is in the correct direction and angle. ▪ Wipe the finger dry and lightly clean the sensor with a dry cloth.
Lock Controller	Finger was recognized correctly but the entry fails.	▪ Check the door lock power connection. ▪ Check the relay wires connection.

6 Specifications

HomeGuard Device Specifications	
Description	
Supply voltage Output	9V DC (Input current: up to 1Amp)
Power consumption	300mA
Interface	Stand alone device Optional Serial communication device
Image resolution	508 DPI
Grayscale image depth	8-bit (256 levels)
Protective coating	10 million swipes
FAR	FAR = 10^{-5}
FRR	FAR = 10^{-4}
Signal output	Encrypted RF transmission signal
Acoustic noise	None
Operating temperature	-10° to 60°C
Storage Temperature	-20° to 70° C
Physical Dimensions	
Weight	Approx 70g
Outer dimensions (L,W,D)	103.7mm x 40.7mm x 21.2mm