B100-SA Standalone Biometric Reader

User Manual

Contents

1.0 INTRODUCTION

B100-SA is a simple one-door standalone biometric system. The reader can store up to 97 finger templates, it has one relay output and one exit button input. If secure installation is needed, the reader can be connected to remote relay unit at secured area, which also plays the role of request-to-exit push button. Complete setup and programming can be done by scrolling and tapping on the sensor.

The sensor incorporates dedicated sensing hardware to facilitate the detection of "spoofing" attacks based on fake fingers. This data is embedded into the image data stream, and is processed on the processor. The system is capable of detecting and defeating well-known fake finger mechanisms, such as molded "gummy" fingers.

The coating on the surface of the TouchChip sensor provides protection from scratching and abrasion due to normal contact with fingertips and any incidental contact with fingernails.

2.0 MOUNTING
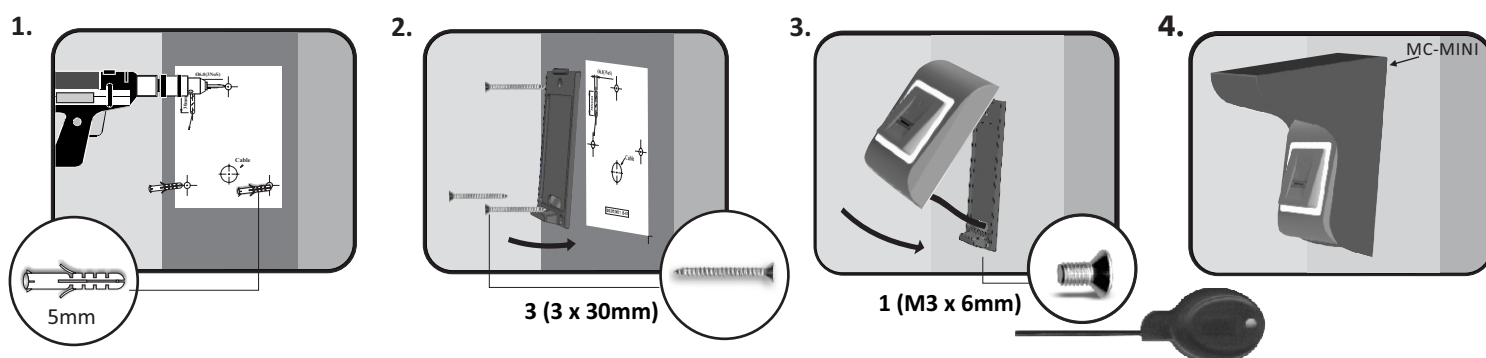
Do not install the device and cabling close to a source of strong electro-magnetic fields like radio-transmitting antenna.
Do not place the device near or above heating equipments.
If cleaning, do not spray or splash water or other cleaning liquids but wipe it out with smooth cloth or towel.
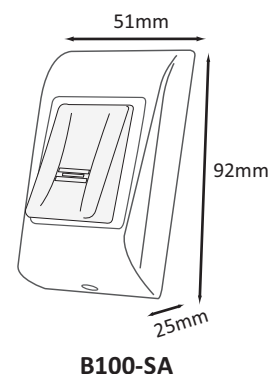Do not let children touch the device without supervision.
Note that if the sensor is cleaned by detergent, benzene or thinner, the surface will be damaged and the fingerprint can't be entered.

If the biometric reader is installed and used outdoor, the reader MUST be fitted with the MC-MINI metal cover available in our accessories in order to protect the sensor from direct rainfall. The operating temperature of the product is between -20ºC - + 50ºC. If the reader is installed in an environment where the temperature can drop below -10ºC or/and if the sensor could only be exposed to direct sunlight, it is strongly recommended to install the reader inside a third party sealed wall mount box (fitted with additional heater if very low temperature) to keep a constant sensor level performance. XPR™ cannot guarantee the functionality of the product if measures and advice before are not followed.
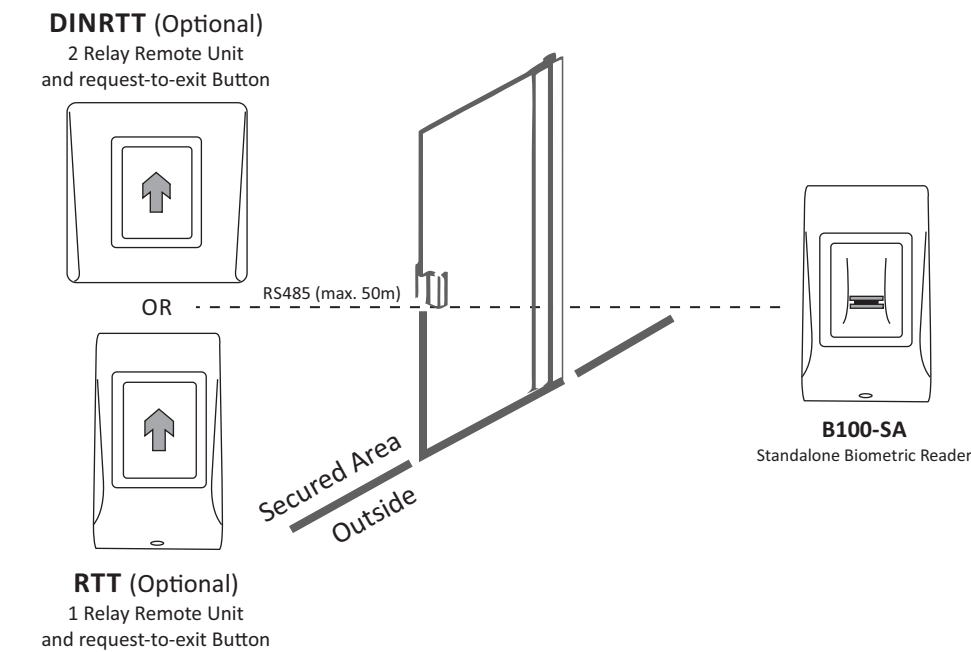It is also strongly recommended to use double technology biometric readers when use outdoor to offer first higher security but also the possibility to use different readers depending on users.

3.0 SPECIFICATIONS

Fingerprint Capacity:	97 templates
Output:	1 x Relay (1 A /24V AC/DC)
Push Button Input:	Yes
Door Open Time:	Pulse (1, 3, 5, 10, 20, 30, 60sec) or Toggle(ON/OFF)
Entry Mode:	Finger
Programming:	By scrolling and tapping on the sensor or by keypad
Master/Admin Fingers:	1 Master and 2 Admin Fingers
Image resolution:	Up to 508 DPI
Backlight ON/OFF:	Yes
Buzzer ON/OFF:	Yes
Firmware upgrade:	via RS485 converter and windows application
Current Consumption:	100 mA max.
Power Supply:	9-14 V DC
Indication:	Tricolor Status LED and 4 x Programming LEDs
Mounting:	Flush mount
IP Factor:	IP65
Storage/Operating Temperature:	-20°C to +50°C
Storage/Operating Humidity:	5% to 93% RH without condensation
Dimensions(mm):	92 x 51 x 25

51mm
92mm
25mm

B100-SA

4.0 APPLICATION DIAGRAM

DINRTT (Optional)
2 Relay Remote Unit
and request-to-exit Button

OR

RS485 (max. 50m)

Secured Area
Outside

B100-SA
Standalone Biometric Reader

RTT (Optional)
1 Relay Remote Unit
and request-to-exit Button

5.0 WIRING

Red	12V DC
Black	GND
Pink	A RS485
Violet	B
Blue	Tamp
Green	
Orange	PB
Gray	NC
Yellow	COM
White	NO

Colour	Connection
Red	12V DC
Black	GND
Green	Tamper
Blue	Tamper
Orange	Push Button
Pink	A (RS485)
Violet	B (RS485)
Grey	NC
Yellow	COM — Relay (1A)
White	NO

Red +
Black −
Pink
Violet
Blue
Green
Orange   PB
Gray   NC
Yellow   COM
White

GND (PB)

12VDC POWER SUPPLY

1N4001 Diode

Electro Magnetic Lock
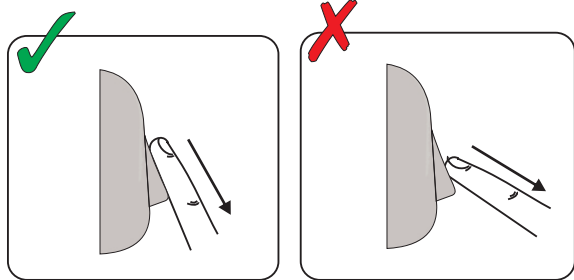
6.0 RECOMMENDED SWIPING TECHNIQUE

Follow the below instructions for correct finger swiping
Starting from the first finger joint, place the selected finger on the swipe sensor and move it evenly towards oneself in one steady movement.
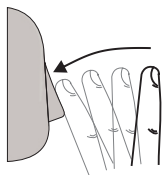
Result:
For a valid swipe: Tricolour Status LED turns green + OK Beep(short + long beep)
For an invalid or misread swipe: Tricolour Status LED turns red + Error Beep (3 short beeps)
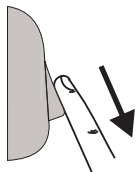
6.1 Taping the sensor

Tap the sensor to enter Submenu or to confirm a command

Enter and confirm

6.2 Scrolling the sensor up and down

Scroll the sensor DOWN to navigate the programming menu
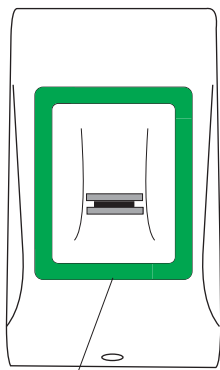

Navigate the Programming Menu

Scroll the sensor UP to exit the programming menu
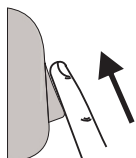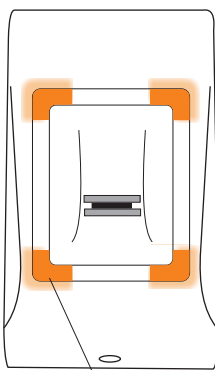

Exit the Programming Menu

7.0 INDICATION

Tricolor Status LED
Green - Access Granted
Red - Access denied
Orange - Idle Mode

4 x Tricolor Programming LEDs
(red, green, orange)

OK Beep   - short + long beep
Error Beep - 3 short beeps
Swipe Again - 2 short beeps

8.0 QUICK PROGRAMMING

8.1 Adding Master Finger and delete all users

1. Push dip switch no.2 in position ON.   No.2
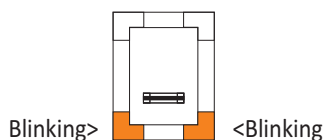
2. Reset the Power of the device.

3. Wait for One long + multiple short beeps

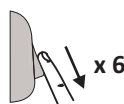4. Put the dip switch in position OFF. (short beeps will stop)   No.2

5. Wait for the bottom row LEDs to blink in Orange.

Blinking>   <Blinking

6. Swipe the Master finger **min.6 times**. (Until Ok Beep)   x 6

Note: After enrolling the Master finger the device will auto-Reset (wait for 7 seconds and the OK beep).
Note: This procedure also deletes all the users and administrators previously enrolled.

1. There is 1 Master Finger. The master finger can enroll/delete user and all the other settings. The Master finger can be changed ONLY with the jumper.

2. There are 2 Administrator Fingers. The administrator can do all the things that Master can do. The Master can delete the Administrator, but the Administrator can not delete the Master.

3. The User can be assigned to one of the 8 available User Groups. With the Quick programming feature, the Users are assigned in Group 1 or Group 2. For most of the installations 2 groups are enough and can be used as: Group 1 for permanent residents, Group 2 for guest and visitors.

4. The user can be deleted by swiping its user finger or by deleting the group in which that user is enrolled. Once the Group of users is deleted, all the users within that group will be deleted.

5. The Groups are not limited by the number of users. (ex. Group 1 can contain 20 users, Group 2 can contain 70 users, but the total number must remain bellow 97...)

8.2 Add User In Group 1

Figure.1
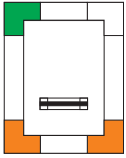
1. Swipe the Master or Admin Finger
2. Swipe the user finger min. **6 times** (until Ok Beep)
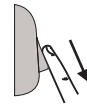
Master Finger x 1

User Finger x 6

8.3 Add User In Group 2

Figure.2
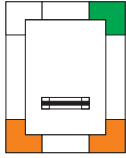
1. Swipe the Master or Admin Finger **twice**
2. Swipe the user finger min. **6 times** (until Ok Beep)

Master Finger x 2

User Finger x 6

8.4 Delete User

Figure.1
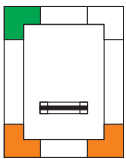
1. Swipe the Master or Admin Finger
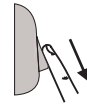2. Swipe the user finger (already enrolled)
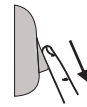
Master Finger x 1
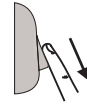
User Finger x 1

8.5 Delete All Users in Group 1
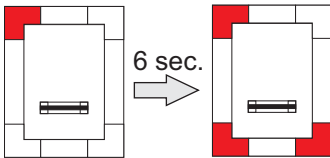
6 sec.

Figure.4

1. Swipe the Master or Admin finger **3 times**,
2. Wait **6 seconds** for the light pattern on figure.4
3. Swipe the Master or Admin finger **once more**

Note: All fingers that are enrolled in Group 1 will be deleted.
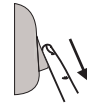
Master Finger x 3

wait 6 seconds
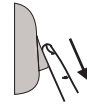
Master Finger x 1

8.6 Delete All Users in Group 2
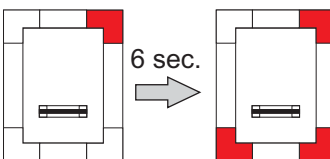
6 sec.

Figure.6

1. Swipe the Master or Admin finger **4 times**,
2. Wait **6 seconds** for the light pattern on figure.6
3. Swipe the Master or Admin finger **once more**

Note: All fingers that are enrolled in Group 2 will be deleted.
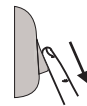
Master Finger x 4

wait 6 seconds

Master Finger x 1

If you make any mistake or you just simply want to **exit** Quick Programming, wait for the timeout of **10 seconds**.

With this, the quick programming is completed. The system is now operational with default value for Door Open Time of **3 seconds.**

For more comprehensive programming, refer to the "**B100-SA Programming**" section.

9.0 PAIRING - BIOMETRIC READER AND REMOTE RELAY UNIT

If secure installation is needed, the reader can be connected to remote relay unit at secured area, which also plays the role of request-to-exit push button. Follow the instructions bellow to pair(couple) both devices or refer to the Remote Relay's Manual.

9.1 Pairing B100-SA with DINRTT
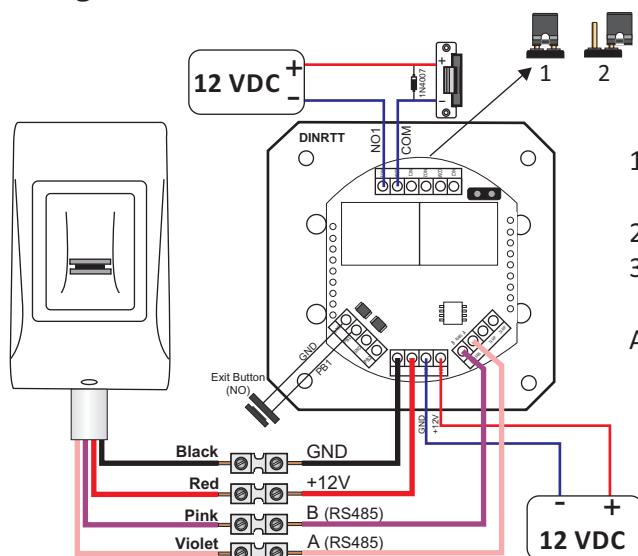
1. Close the Jumper. DINRTT beeps continuously and the red led blinks.
2. Open the Jumper
3. Wait for Beep + OK Beep (short + short + long beep)

After the OK beep, the coupling is done.

9.2 Pairing B100-SA with RTT
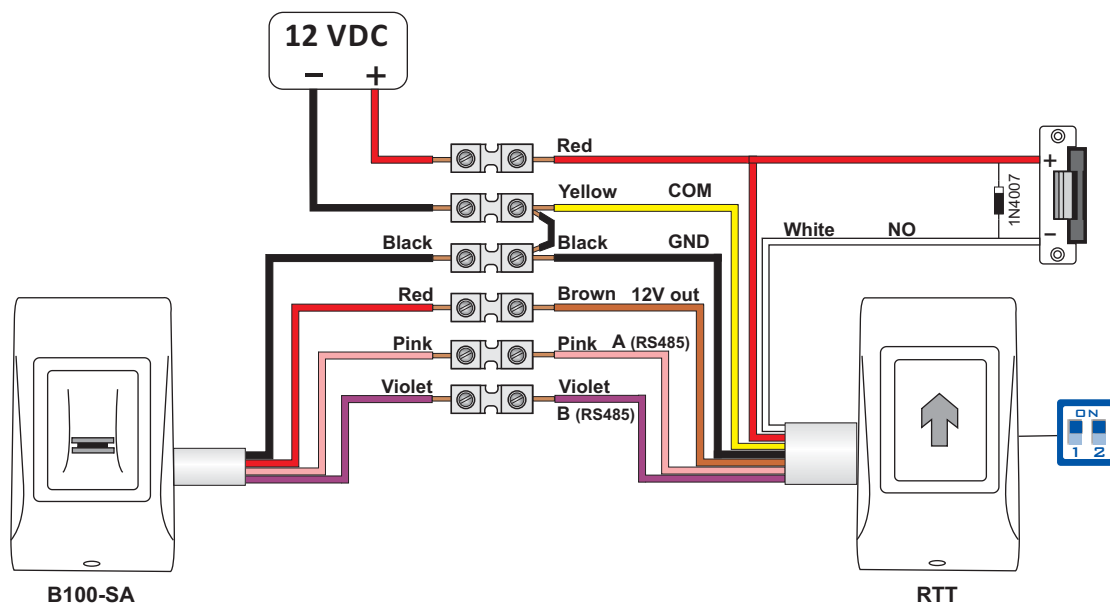
1. Put Dipswitch No.1 to position ON. RTT beeps continuously and the red led blinks.
2. Put Dipswitch No.1 to position OFF.
3. Wait for Beep + OK Beep (short + short + long beep)

After the OK beep, the coupling is done.

10.0 KEEP THE DOOR UNLOCKED

Swipe ANY enrolled finger twice (within 7 seconds) and the Door will stay unlocked, until valid finger is swiped.
While the door is unlocked the tricolor status LED stays green.

User Finger x 2

To use this feature, enable the same from the menu.(page 15). It applies for product version 1.0.2.0.0 and above.
Note: *Make sure that the door lock can withstand activation in longer periods.*
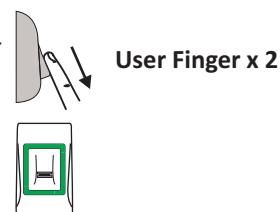
11.0 B100-SA PROGRAMMING MENU

11.1 Adding Users

Swipe the Master/Admin finger **5 times** until the light pattern on figure.9 is shown

Figure.9

BL

x 5

Tap sensor

BL

Select User Group

Swipe the finger to select:

BL **Group 1**   BL **Group 5**

BL **Group 2**   BL **Group 6**

BL **Group 3**   BL **Group 7**

BL **Group 4**   BL **Group 8**

Tap sensor

Assign Relay Output

Swipe the finger to select:

BL **Relay 1**   BL **Both**

BL **Relay 2**   BL **None**

NOTE:
Swipe UPWARDS
to exit the MENU

Tap sensor

(Orange Blinking)

Swipe the user finger for **Finger** mode **min.6 times.**   x 6

Example:
Task: Add a user in Group2, that will activate Relay1.

Scroll Master Finger 5 times, tap, scroll ones, tap, tap, swipe user finger 6 times, swipe UP to exit.

11.0 B100-SA PROGRAMMING MENU

11.2 Delete User

Swipe the Master/Admin finger **7 times**
until the light pattern on figure.12 is shown

Figure.12   x 7

Tap sensor

Blinking row >

Swipe finger

OK Beep → **Back to MAIN MENU**

11.3 Delete All Users

Swipe the Master/Admin finger **11 times** until
the light pattern on figure.14 is shown

Figure.14   x 11

Tap sensor

Blinking row >

Tap sensor
to confirm or swipe UP
to Cancel

deleting...

Note: The Master and the Administrators
will not be deleted

OK Beep → **Back to MAIN MENU**

11.0 B100-SA PROGRAMMING MENU

11.4 Delete Group of Users

Swipe the Master/Admin finger **6 times** until the light pattern on figure.13 is shown

Figure.13   x 6

Tap sensor

Select User Group to Delete

Swipe the finger to select:

BL **Group 1**   BL **Group 5**

BL **Group 2**   BL **Group 6**

BL **Group 3**   BL **Group 7**

BL **Group 4**   BL **Group 8**

Tap sensor

OK Beep

Back to MAIN MENU
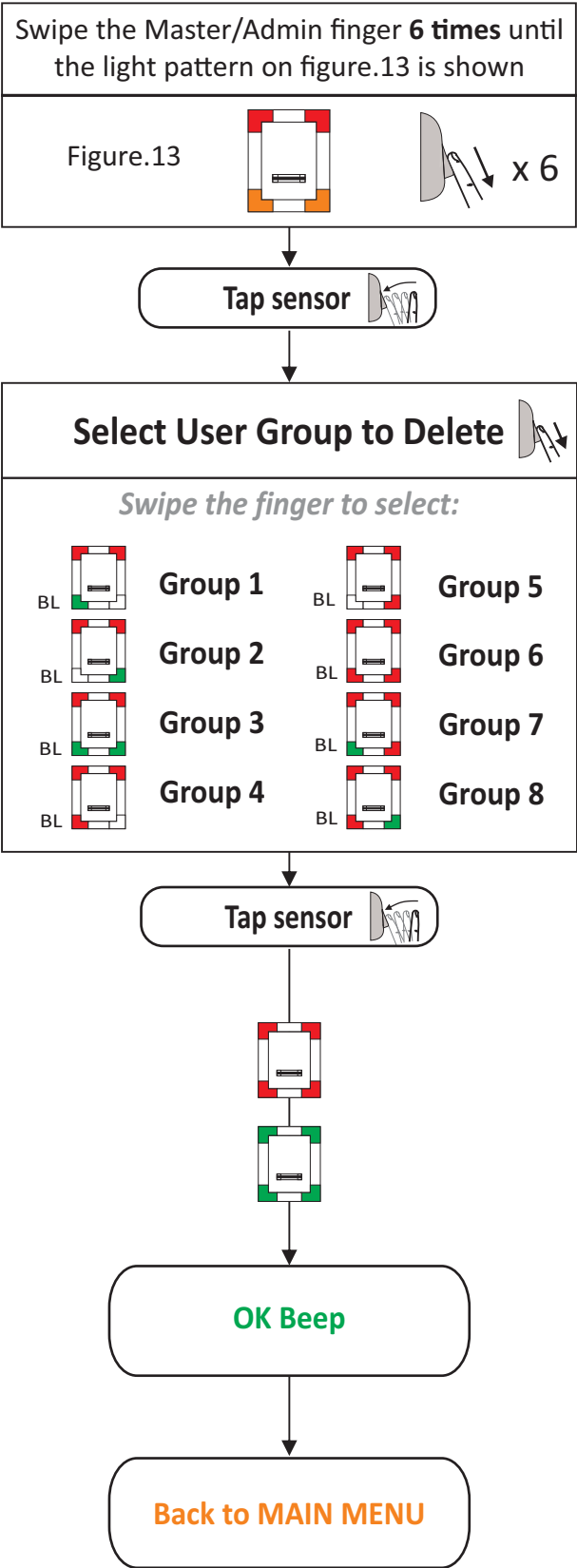
NOTE:
*Swipe UPWARDS
to exit the MENU*

Note: *All fingers that are enrolled in the Group will be deleted.*

Example:
Task: Delete all users in Group3

Scroll Master Finger 6 times, tap, scroll twice, tap, swipe UP to exit.

11.0 B100-SA PROGRAMMING MENU

11.5 Add Administrator

Swipe the Master/Admin finger **12 times** until the light pattern on figure.10 is shown

Figure.10 BL x 12

Tap sensor

Select Admin nr.

Scroll down to select:

BL **Admin 1**

BL **Admin 2**

Tap sensor

(Orange Blinking)

Swipe the Admin finger **min.6 times.**(Until Ok beep) x 6

**Back to MAIN MENU
(to Add User menu)**

NOTE:
Swipe UPWARDS
to exit the MENU

- There is 1 Master Finger. The master finger can enroll/delete user and all the other settings.
- The Master finger can be changed ONLY with the jumper.
- There are 2 Aministrator Fingers. The administrator can do all the things that Master can do. The Master can delete the Administrator, but the Administrator can not delete the Master.

11.0 B100-SA PROGRAMMING MENU

11.6 Delete Administrator
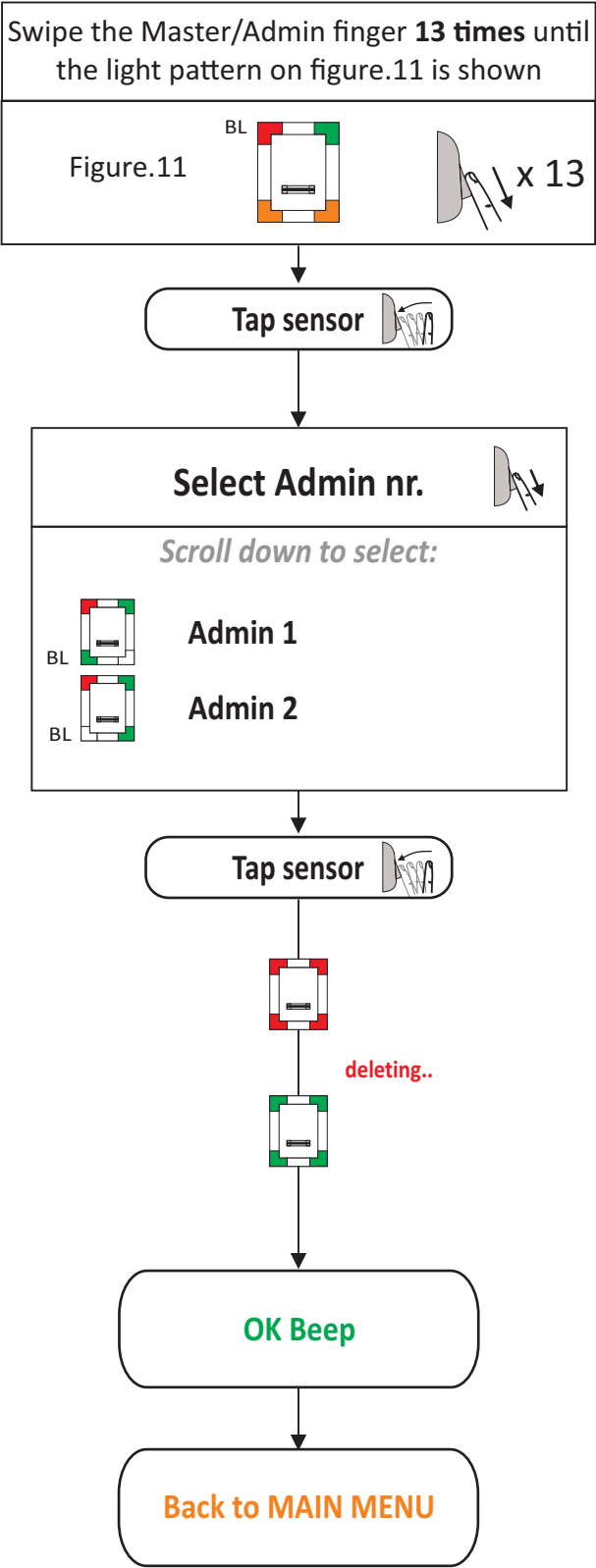
Swipe the Master/Admin finger **13 times** until the light pattern on figure.11 is shown

Figure.11   BL   x 13

Tap sensor

Select Admin nr.

Scroll down to select:

BL   **Admin 1**

BL   **Admin 2**

Tap sensor

deleting..

OK Beep

Back to MAIN MENU

NOTE:
Swipe UPWARDS to exit the MENU

- There is 1 Master Finger. The master finger can enroll/delete user and all the other settings.
- The Master finger can be changed ONLY with the jumper.
- There are 2 Aministrator Fingers. The administrator can do all the things that Master can do. The Master can delete the Administrator, but the Administrator can not delete the Master.

11.0 B100-SA PROGRAMMING MENU

11.7 Settings

Swipe the Master/Admin finger **10 times** until
the light pattern on figure.7 is shown

Figure.7   x 10

Tap sensor

Blinking row >

By swiping finger select appropriate light pattern

Swipe the finger to select:

BL **Double Swipe Unlocks Door**

BL Sensor security

BL **Entry mode**

BL **Remote Relay Touch Function**

BL **Buzzer**

BL **Backlight**

BL **Reset to defaults**

Tap sensor

Continues on the next 2 pages

NOTE:
Swipe UPWARDS
to exit the MENU

Entry Mode - used when additional proximity or keypad reader is connected
Remote Relay Touch Function - Enabling/Disabling the Touch Button Function in the remote relay Unit
Buzzer - Enabling/Disabling the Buzzer
Backlight - Enabling/Disabling the Backlight

11.0 B100-SA PROGRAMMING MENU

11.7 Settings

11.7.1 Double Swipe Unlocks Door, Entry Mode, Remote Relay Touch Function

Double Swipe Unlocks Door	Entry MODE	Remote Relay Touch Function

Double Swipe Unlocks Door

Scroll down to select:

BL **1 ON**

BL **2 OFF**

product ver. 1.0.2.0.0

By swiping finger select entry mode

Scroll down to select:

BL **Finger**   BL **Finger AND Card**

BL **Finger OR PIN**   BL **Finger ON Card**

BL **Finger AND PIN**

BL **Finger OR Card**

Touch Button ON/OFF

Scroll down to select:

BL **1 ON**

BL **2 OFF**

Tap sensor → **OK Beep** → **Back to MAIN MENU**

Tap sensor → **OK Beep** → **Back to MAIN MENU**

Tap sensor → **OK Beep** → **Back to MAIN MENU**
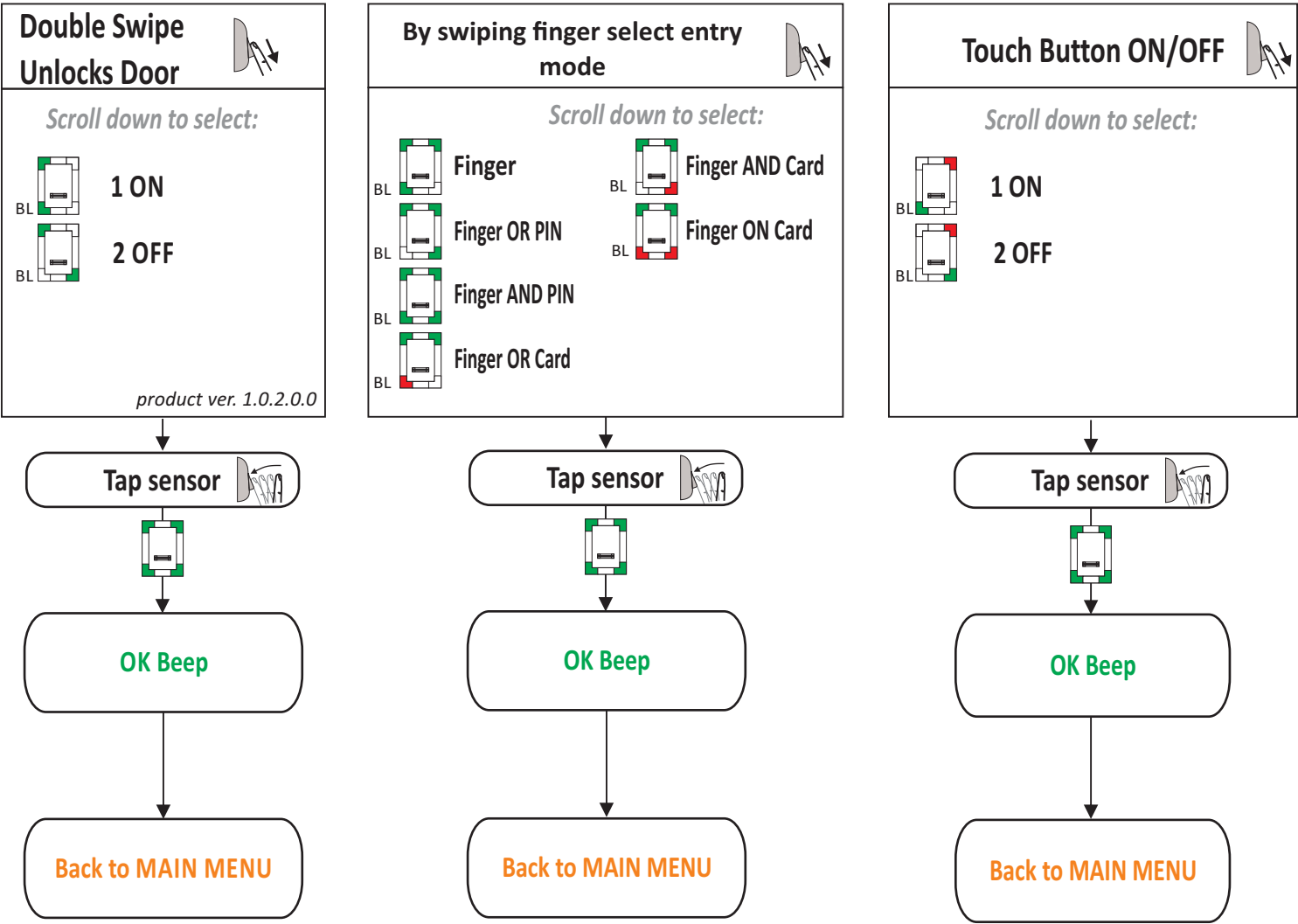
Note:
Refer to Chapter 10 for this feature

NOTE:
Swipe UPWARDS to exit the MENU

Example:
Task: Set the Reader to work in "Finger and Card" mode

Scroll Master Finger 10 times, tap, scroll twice, tap, scroll 4 times, tap, swipe UP to exit.

11.0 B100-SA PROGRAMMING MENU

11.7 Settings
11.7.2 Buzzer Sound, Backlight, Reset to defaults

Buzzer sound	Backlight	Reset to defaults

Buzzer ON/OFF

Scroll down to select:

Remote OFF

Reader OFF

All ON

All OFF

Tap sensor

OK Beep

Back to MAIN MENU

Backlight ON/OFF

Scroll down to select:

Remote OFF

Reader OFF

All ON

All OFF

Tap sensor

OK Beep

Back to MAIN MENU

Reset to defaults

Tap to confirm:

BL

product ver. 1.0.2.0.0

Tap sensor

OK Beep

Back to MAIN MENU

Note:
Does not affect the fingerprints
stored and the pairing

NOTE:
Swipe UPWARDS
to exit the MENU

Example:
Task: Put the Buzzer OFF.

Scroll Master Finger 10 times, tap, scroll 4 times, tap, scroll ones, tap,, swipe UP to exit.

11.0 B100-SA PROGRAMMING MENU

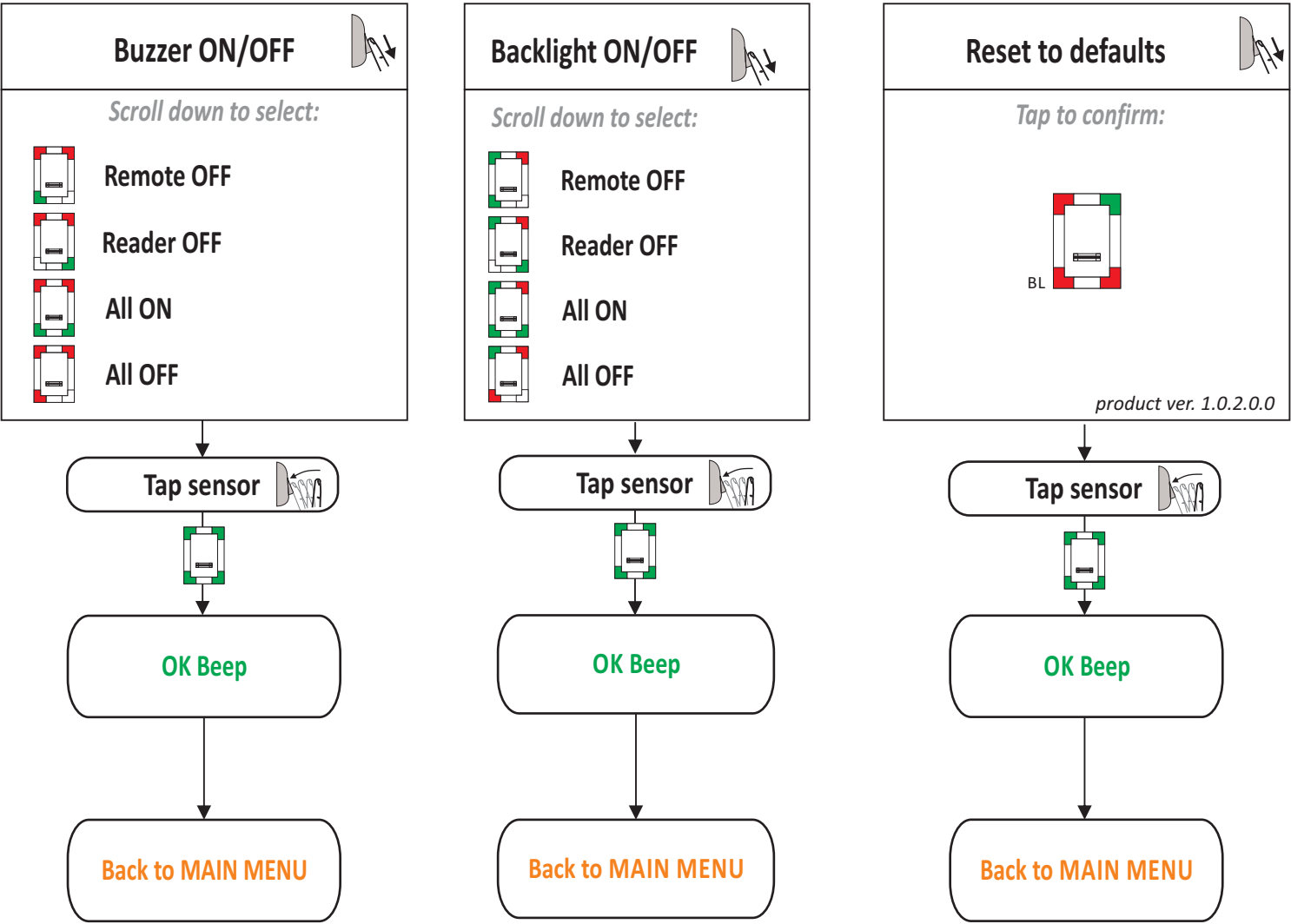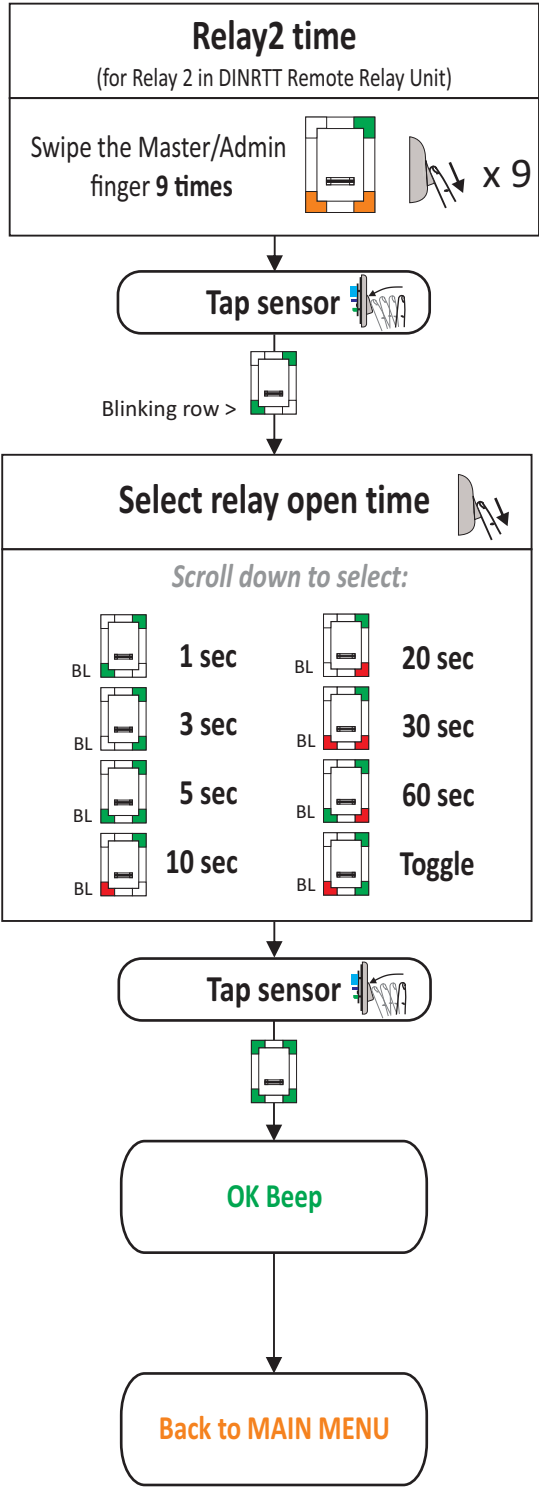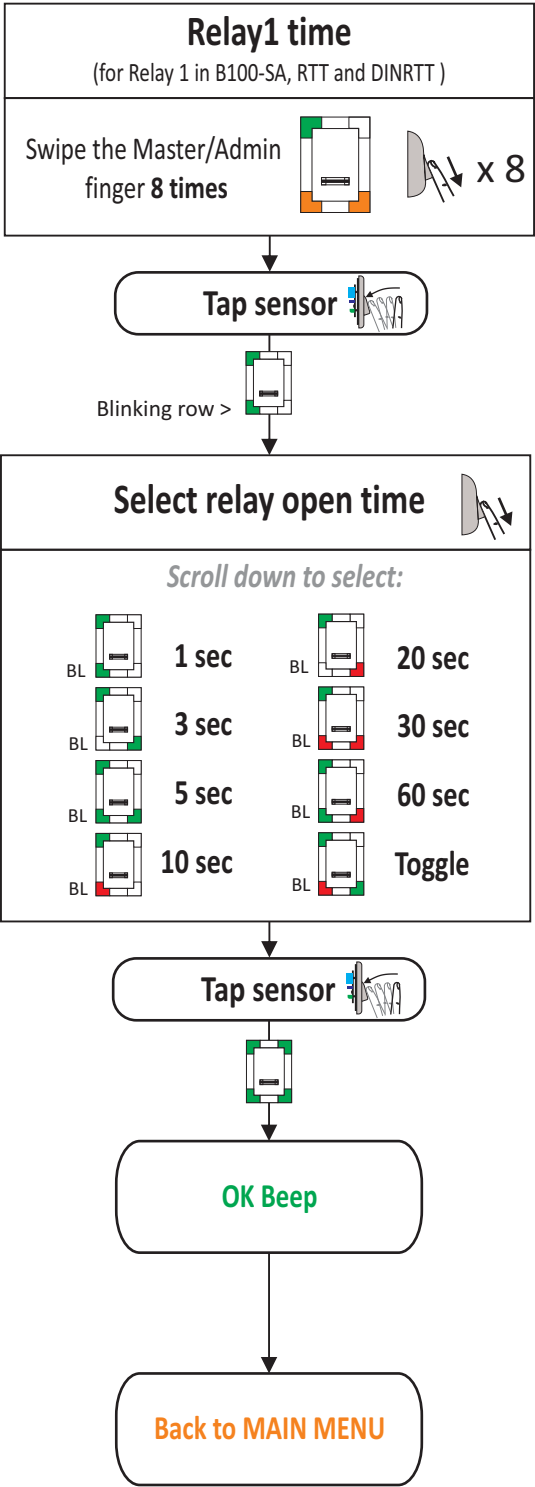## 11.8 Set Door Relay Time

Relay1 time
(for Relay 1 in B100-SA, RTT and DINRTT)

Swipe the Master/Admin finger **8 times** x 8

↓

Tap sensor

Blinking row >

↓

Select relay open time

Scroll down to select:

BL **1 sec**   BL **20 sec**
BL **3 sec**   BL **30 sec**
BL **5 sec**   BL **60 sec**
BL **10 sec**   BL **Toggle**

↓

Tap sensor

↓

OK Beep

↓

Back to MAIN MENU

Relay2 time
(for Relay 2 in DINRTT Remote Relay Unit)

Swipe the Master/Admin finger **9 times** x 9

↓

Tap sensor

Blinking row >

↓

Select relay open time

Scroll down to select:

BL **1 sec**   BL **20 sec**
BL **3 sec**   BL **30 sec**
BL **5 sec**   BL **60 sec**
BL **10 sec**   BL **Toggle**

↓

Tap sensor

↓

OK Beep

↓

Back to MAIN MENU

NOTE:
Swipe UPWARDS to exit the MENU

Example:
Task: Put Relay1 to stay activated 10 seconds.

Scroll Master Finger 8 times, tap, scroll 3 times, tap, swipe UP to exit.

This product herewith complies with requirements of EMC directive 2014/30/EU. In addition it complies with RoHS directive EN50581:2012

Visual Plus Corporation, s.a.

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