DIEBOLD
NIXDORF

BA9x Fingerprint Reader
Peripheral module

User Manual

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We would like to thank you in advance for your comments.
With kind regards.

Your Opinion:

BA9x Fingerprint Reader
Peripheral module

User Manual

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Contents

Manufacturer's declaration and approval

General authorization

This device complies with the requirements of the directive 2014/30/EU with regard to "Electromagnetic Compatibility" and 2014/35/EU "Low Voltage Directive" and RoHS directive 2011/65/EU.

Therefore, you will find the CE mark on the device or packaging.

FCC-Class A declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not authorized by the manufacturer may void users' authority to operate this device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

CAN ICES-3 (A)/NMB-3(A)

Warranty

Diebold Nixdorf guarantees generally a warranty engagement for 12 months beginning with the date of delivery. This warranty engagement covers all those damages which occur despite a normal use of the product.

Damages because of

- improper or insufficient maintenance,
- improper use of the product or unauthorized modifications of the product,
- Inadequate protection from environmental surroundings

will not be covered by the warranty.

For further information of the stipulation look at your contract.

All parts of the product which are subject to wear and tear are not included in the warranty engagement.

Please order spare parts at the Diebold Nixdorf customer service.

Supplier's Declaration of Conformity

Product Description: Fingerprint Reader
Model: BA9X FP

Party issuing Supplier's Declaration of Conformity
Diebold Nixdorf Singapore PTE. LTD.
151 Lorong Chuan New Tech Park #05-01 A/B
Singapore 556741

Phone: +65 6747 3828

Responsible Party – U.S. Contact Information
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5995 Mayfair Road
N. Canton, OH 44720 / USA

Phone: +1 330 490 5049

FCC Compliance Statement (for products subject to Part 15)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Introduction

The BA9x Fingerprint Reader module allows the integration of the Crossmatch U.area.U 4500, one of the most frequently installed fingerprint readers in the retail sector, with the BA92, BA92 and BA93W operator displays and the iPOS Plus Advanced.

The U.are.U 4500 fingerprint reader is a small form factor fingerprint reader that delivers s secure login and identification process to the retail sector. Via biometric analysis of fingerprints, it offers perfect authentication for securing access to EPOS systems, especially in retail environments where the POS is easily accessible or where there are frequently changing operators.

Features at a glance

- Zero footprint
- Easy to integrate via USB
- Quick and secure login at the POS
- High Electrostatic immunity
- Angle independent reading ability
- Latent fingerprint rejection
- Counterfeit finger detection
- Robustness
- Low power consumption

About this manual

This manual is intended to help you to install and operate the BA9x Fingerprint Reader Module for BA9x Displays and iPOS Plus Advanced Systems. The detailed table of contents will help you find the information you need quickly and easily.

 Notes in the manual are marked by this symbol.

 This symbol is used for warnings.

Sofware integration and application development based on the OEM module supplier's "Software Development Kit" (SDK) are not covered by this manual.

All diagrams and pictures are schematic only. The actual device that has been delivered could differ in certain details.

Product overview

General description

The BA9x Fingerprint Reader module is a display peripheral module compatible with BA92, BA93, BA93W Displays and the iPOS Plus Advanced POS system.

It can be connected to the left or right side of the display, using internal USB connection cables, to avoid additional external cabling to the host system.

The module features an optical fingerprint reader from Crossmatch, the U.are.U 4500, which provides best in class biometric fringerprint recognition of even hard to read prints.

Limitations

The module is delivered without Software. Crossmatch offers "Software Development Kit" (SDK), drivers and middleware device services to allow for an easy POS application integration.

Before first time use

Delivery items

Unpack the components and verify that what has been delivered is identical to the information on the delivery ticket.

The Fingerprint Reader module consists of the following items, as shown in the picture below.

- the module itself
- two Torx screws, M3x15mm
- USB-A to internal USB connection cable (only used for BA9x left side mounting)
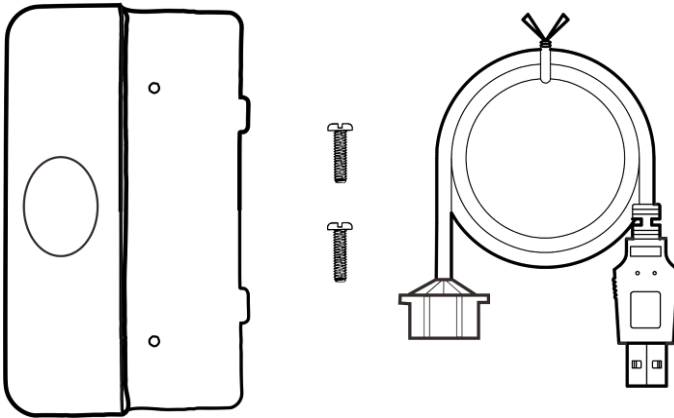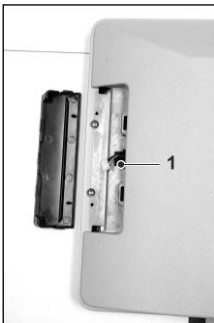
Hardware installation

The Fingerprint Reader can be installed on either the right or the left side of the screen. You will find a flap at the rear side of the display at the position for the peripherals.

Mounting on the right side (seen from the front)

Follow the steps below to install the reader to BA9x Displays or iPOS Plus Advanced systems.
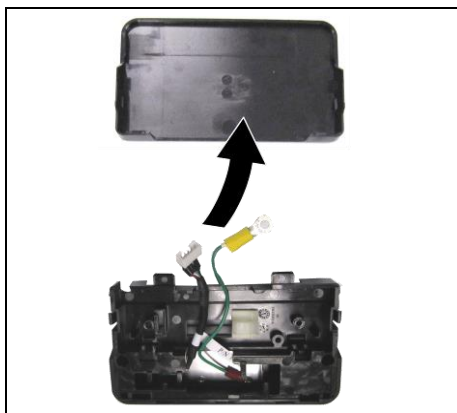
BA9x Displays

iPOS Plus Advanced Systems

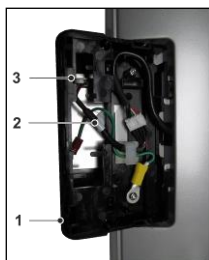1. Remove the flap using a screw driver, exposing one end of a connecting cable (1).

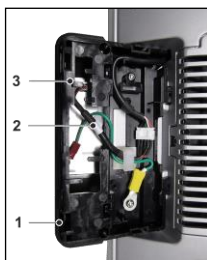2. Release the catch on one side of the holder.

3. Remove the back cover of the holder
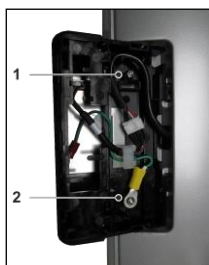
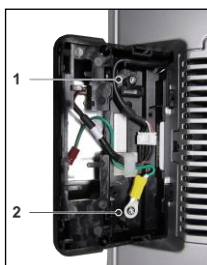BA9x Displays   iPOS Plus Advanced Systems

4. Locate the holder (1) to the side of the display uncovered in step 1.

   Route the connecting cable (2) into the holder and connect to the connector (3).

BA9x Displays   iPOS Plus Advanced Systems

5. Use the two screws supplied to secure the holder, at positions (1) and (2) with the ground cable.

BA9x Displays   iPOS Plus
Advanced
Systems

6. Place in the back cover
   of the holder.

   The installation is
   complete.

Mounting on the left side (seen from the front)
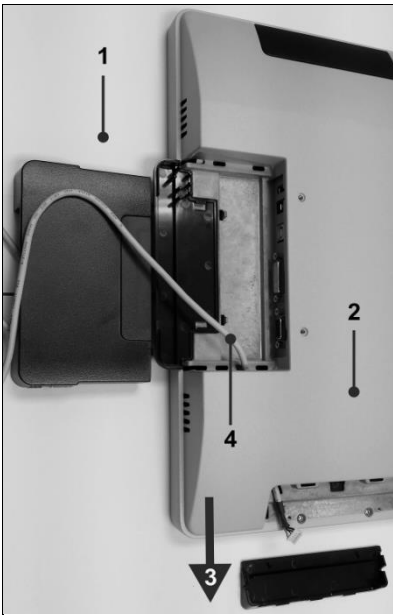
1. Place a piece of protection
   sheet on a flat surface e.g.
   a table.
2. Lay the display face down
   on the protection sheet.
3. Remove left side cover at
   the back of the display.
4. Route in the supplied
   cable as shown.
5. Follow the same steps
   described for the right side
   mounting.

Software installation

Authentication-Verification Software can be purchased from CrossMatch. Please visit the site with link below to find out more.

http://www.crossmatch.com/authentication-software/

For developers, system integrators and end-users who want to develop their own application, CrossMatch offers Software Development Kits that include complete API, drivers and biometric engine for multiple platforms and language interface.

For more information, please visit the Crossmatch web page http://www.crossmatch.com/sdks/

Operating the Fingerprint Reader

The use of the fingerprint reader within the SW application can be very diverse. It can be used for operator logins, approvals for restricted functions and any other kind of user authentication or identification.

In all cases, the user handling remains the same.

For registration, the user will enroll one or more of his fingers with the biometric application. These fingers can later be used for identification within the application.

When prompted, the user places one of his registered fingers on the oval window of the reader module. The user must take care that as much of his registered fingerprint is placed on the reader, to allow for a successful identification.

The application will indicate an identification success or failure.

Dirty or damaged fingerprints will limit the usability of this technology. Enrolling multiple fingers from both hands is therefore recommended.
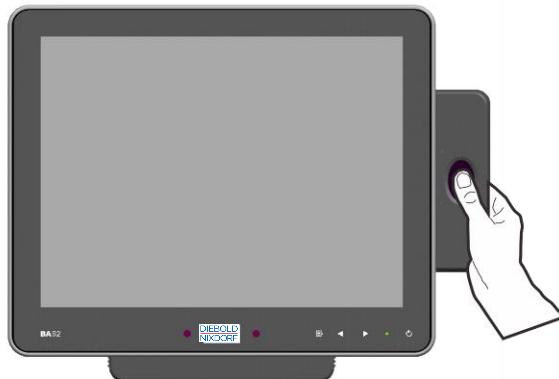
Cleaning instruction

Special care must be taken to keep the fingerprint reader in good working condition. Dust or coarser particles may settle on the window that can reduce the image recognition quality, in the worst case, scratches on the soft silicon coating on the window can render the optical reader unusable. Therefore, periodic cleaning is necessary to remove accumulated particles.

Use normal cellophane to pick the dust particles by lightly pasting it on the window and then peeling it off slowly. Throw it away and use a new piece each subsequent time until the window is cleared of all noticeable particles.

In case you may want to disinfect the windows you are advised to use Diebold recommended disinfecting solution with a soft lint-free material. Moist it and gently dab the reader's window.

 Do not scrub the reader window. Scrubbing will damage the surface.

Technical data

Technology	Optical scanning
Pixel resolution	512 dpi
Scan data	8-bit grayscale
Image distortion	< 1%
Image Transfer speed	6 fps
Interface	USB 2.0 full-speed
Supply Voltage	5V +/-5%
Rated current	120mA
Operating Temperature	5 ^{0} C up to 40 ^{0} C
Operating Humidity	20% to 80% non-condensing
Supported Operating System	Windows 7 Pro POSReady 7 Windows 8.1 Pro Windows 8.1 Industry POSReady 2009 WNLPOS2 WNLPOS3
Dimension (Width x Height x Depth)	36 mm x 125 mm x 34 mm
Weight	115 g

Abbreviation index

API	Application Programming Interface
CE	European symbol of Comformity
EC	European Community
FCC	Federal Communications Commission
ICES	Inteference-Causing Equipment Standard
POS	Point-Of-Sale
RoHS	Restriction of Hazardous Substances
USB	Universal Serial Bus
SDK	Software Development Kit

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