

# User Guide for IDS-9000 Scanner

3M<sup>™</sup> AT9000 MK2 Full Page Reader User Guide

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## Preface

This user guide describes the features and functions of the 3M<sup>™</sup> AT9000 MK2 Full Page Reader (PV60-xx-xx-xx).

## **Revision History**

| Version | Date         | Description     |
|---------|--------------|-----------------|
| А       | Feb 27, 2013 | Release version |

## **Electromagnetic Compatibility (EMC)**

The Products are designed to be immune to levels of interference generated within an office environment and not to interfere with other equipment. In order to provide this level of compatibility the Product, its cabling and PSU or its installations, must not be modified in any way.



Modifications or changes to the Product, the interface cables or the power supply not expressly approved by the manufacturer could void the User's authority to operate the Product and/or break local laws or regulations.

For further regulatory information or copies of certificates contact your local 3M representative or the manufacturer at <u>3M-AiT-gcs@mmm.com</u>

### **EMC** Compliance Europe

The Product meets the following European Council Directives:



- Scanner: EMC (2004/108/EC), RFID Option RE&TTE (1999/5/EC)
- PSU: EMC (2004/108/EC), LVD (2006/95/EC)

## FCC/Canada Radio Frequency Rules and Regulations

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 a 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/her own expense.

NO MODIFICATIONS. Modifications to this device shall not be made without the written consent of 3M Company. Unauthorized modifications may void the authority granted under Federal Communications Commission Rules permitting the operation of this device.



### **FCC Labelling**

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.

FCC ID: DGFSSDPV40

#### Canada Labelling

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

Canadian ID: 458A-SSDPV40

## **Disposal - European Directive 2002/96/EC**



Do not dispose of this equipment in domestic or general waste. These devices can be recycled and should be disposed of in accordance with your local and national regulations.

For UK customers who have equipment supplied after August 2005 please contact 3M to arrange for the disposal of this equipment.

Do not send equipment back to 3M unsolicited.

## Packing for Transportation

When packing this product for repair or shipment, carefully disconnect the cables and power supply and pack in the original inner and outer packaging cartons.

## **Important Safety Information**

This manual contains important information regarding the operation of the 3M <sup>™</sup> AT9000 MK2 Full Page Reader. For the safe and reliable operation of the readers, all users must ensure that they are familiar with and fully understand all instructions contained herein.

| <b>WARNING</b>   | Indicates a hazardous situation which, if not avoided, could result in death or serious injury.    |
|------------------|--|
| <b>A</b> CAUTION | Indicates a hazardous situation which, if not avoided, could result in injury or equipment damage. |
| NOTICE           | Indicates a situation which, if not avoided, could result in equipment damage.                     |
| Note:            | Provides additional important information.   |

| To red<br>death o | uce the risk associated with hazardous voltage which, if not avoided, could result in<br>or serious injury:                                      |  |  |  |  |
|-------------------|--|--|--|--|--|
| •                 | Do not use the reader with any AC power supply other than the provided 3M AC power supply.   |  |  |  |  |
| •                 | Do not use AC power supply and/or power cord if damaged.   |  |  |  |  |
| •                 | Do not open the reader and/or power supply. Reader is to be serviced by trained personnel only. No user serviceable parts or adjustments inside. |  |  |  |  |
| •                 | Do not modify or attempt to modify the reader and/or AC power supply.  |  |  |  |  |
| •                 | Use only in an indoor dry location. Do not use the product in an outdoor and/or wet environment.   |  |  |  |  |

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## 1. Introduction

The 3M<sup>™</sup> AT9000 MK2 Full Page Readers are intelligent, optical character recognition (OCR), full-image capture and RFID devices that provide automated data capture from a variety of personal identification documents, including ePassports, passports, visas and other travel documents.

The reader's small footprint and its ability to image challenging documents in brightly lit conditions with minimal CPU loading on the host PC makes it ideal for use by immigration control, airlines, banks, hotels, and casinos. The readers have no motorized moving parts to ensure maximum reliability.



3M AT9000 MK2 Full Page Reader

## Supported documents and formats

The AT9000 MK2 Full Page Reader readers a wide-range of documents and formats:

- Supported documents include passports, visas and all other ICAO-standard travel documents, as well as many non-ICAO variations.
- Integrated ePassport support so operator can read the OCR and smartcard chip in one operation. All data groups, hashings, validations, basic access control (BAC), passive/active authentication and extended access control (EAC) are supported.
- Optical character recognition (OCR) support for reading the MRZ and HRZ on machine readable travel documents (MRTD).
- Reads 1D and 2D barcodes (PDF417, Aztec, QR codes and Data Matrix).
- Reads home print and mobile (cell) phone boarding passes (BCBP) and 1D/2D barcodes.
- ISO7816 smartcard reading (optional)
- Magnetic stripe reading (optional)
- Enhanced document detection and authentication software (optional)

## **Imaging features**

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader family has the following imaging features:

- True-color and anti-glare technologies deliver accurate, true-color images while minimizing interference from document laminate reflections, optically-variable security features or ambient light.
- Multiple light sources for image capture and authentication visible (RGB), infra-red (IR), ultraviolet (UV-A).
- Captures full-color or grey-scale images (400 DPI camera)
- Flexible software interface (3M<sup>™</sup> Page Reader SDK) allows host application to select which illumination sources to use, image type, image compression, ePassport LDS data and validation, photo extraction, etc. Environments include Visual C++®, Java® and Microsoft® .NET Framework for Visual Basic®
- 3M<sup>™</sup> Confirm<sup>™</sup> Laminate imaging with tamper detection

## **Physical design features**

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader family has the following physical design features:

- Supports single-handed operation. Semi-enclosed removable hood holds document in place during reading.
- Document hood may be removed if desired. The reader is capable of hoodless operation in most brightly-lit indoor environments.
- · Simple, intuitive and quick operation that accepts documents in any orientation
- Small footprint, no moving parts, robust construction.
- Provides two USB2.0 ports for attaching additional biometric devices like a webcam or fingerprint reader.
- Powered from a single USB 2.0 port. An optional external power supply is available to support externally attached modules (e.g. magnetic stripe or contact smartcard reader) or USB peripherals.

## **Common applications**

Typical uses of the 3M<sup>™</sup> AT9000 MK2 Full Page Reader include:

- APIS data capture with cross checking of FAA watch lists
- ePassport and other travel document reading and authentication
- Scanning full-color or grey-scale images of travel documents
- Electronic manifests with traveler photo images
- Hotel check-in and reporting
- Document authentication at banks and casinos
- ID checks
- Airline ticket fraud detection
- Travel document quality assurance

## **Security features**

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader can help the operator detect forged or counterfeit documents.

Reading the UV features printed in fluorescent inks on a document provides inspectors with color images of covert document security features.

Optional 3M Confirm<sup>™</sup> Laminate imaging allows the inspectors to quickly verify the authenticity of the document. It can also indicate if documents have been tampered with by revealing marks or other damage.

The following images were taken using the 3M<sup>™</sup> AT9000 MK2 Full Page Reader.



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 H12345678

 ANDERAS
 LILIAN

 LILIAN
 NM

 Dia 70
 OTTAWA CANADA

 27 12 06
 NMM CANADA

 27 12 11
 MMC

Infrared Image

Ultraviolet Image



3M Confirm Laminate Image



## True-color/anti-glare technologies

Anti-glare technology, ambient light compensation and true color imaging ensure that the 3M<sup>™</sup> AT9000 MK2 Full Page Reader will deliver superior, accurate images of challenging documents in demanding conditions, including those with holographic laminates.



Without Anti-Glare Technology





With Anti-Glare Technology



#### Ambient Light Removed



### **Reader components**

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader is a small desktop device with:

- A window for scanning documents
- Device status and activity lights
- · Back panel ports for communication, power, and security
- Removable document hood and adjustable clip to allow for scanning of oversized documents
- Optional 5 volt power supply
- Optional rear-mounted smartcard reader
- · Optional rear-mounted magnetic strip reader

Depending on your model, various configurations or components may be available.



AT9000 MK2 Full Page Reader without removable document hood



AT9000 MK2 Full Page Reader with optional smartcard reader and optional fixed hood



AT9000 MK2 Full Page Reader with optional magnetic stripe reader and removable document hood

#### **Document window**

The document window is a glass surface located on top of the reader. Place documents on the window to scan them. The reader will automatically detect when a document is placed on it.

Keep this surface clean to ensure optimum operation of the reader. See "Cleaning the reader" on page 34.

### **Indicator lights**

The indicator lights show the reader status and scan results.

| Light | Color         | Description  |
|-------|---------------|--|
| Error | Red           | Document is of an unknown type or did not process properly.                  |
| ОК    | Green         | A known document type was presented and processing was successful.           |
| Busy  | Yellow        | Reader is scanning a document and processing the data.                       |
| Ready | Blue          | Reader is ready to scan a document (when connected to the host application). |
|       | Flashing Blue | USB cable is not connected (only present if optional power supply is used)   |

#### **Back panel**

The back panel contains the power switch, power supply connector, and USB ports. Data is sent to the host PC through the USB host connector. When powered from the optional external power supply, the reader also functions as a USB 2.0 hub. It has two auxiliary ports for connecting additional USB peripherals (such as a mouse, keyboard, or 2D barcode reader).

The Kensington® Security Slot can be used to tether the reader to the workspace.



The reader is capable of operating on USB 2.0 power. However, when operating on USB power, due to the limited power available over the USB interface:

- the reader's speed will be slightly slower than when powered from the external power supply
- the back panel USB peripheral ports will not be available.

A power supply is included with each 3M<sup>™</sup> AT9000 MK2 Full Page Reader. 3M recommends the use of the supplied power supply for best performance.

#### **Document hood**

The AT9000 MK2 Full Page Reader features a semi-enclosed hood that performs two functions: it holds the document in place to enable hands-free operation and it minimizes ambient light to ensure highquality scans. The hood can easily be removed if the user needs to scan an extra thick document, or if the user finds it more convenient to use the reader this way.

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader can compensate for ambient light in most bright office environments.

A fixed-hood option is also available.



An adjustable document clip located above the document window ensures that documents, regardless of their thickness, easily slide into the reader and are held flat during scanning.

## 2. Installing the Reader

This chapter explains how to install the 3M<sup>™</sup> AT9000 MK2 Full Page Reader software and connect the reader to the PC.

### Before you begin

Before you install the reader, you need to meet the following requirements:

- A PC with USB 2.0 ports (the reader will not work if connected to a USB 1.1 port)
- A PC running Windows® 2000 SP4/XP/Vista/7
- Administrative rights to install the software
- If you are installing multiple readers with the RFID option, ensure a minimum of 25 cm (10 inches) between readers to prevent potential interference.

### Installation overview

Installation consists of the following steps:

- 1. Unpack the reader.
- 2. Install the software.
- 3. Connect the reader cables.
- 4. Power on the reader.
- 5. Test the reader installation.

## Unpack the reader

Each reader package consists of:

- 3M AT9000 MK2 Full-Page Reader
- Power supply converter and AC cable (optional)
- Test card
- USB communication cable
- 3M<sup>™</sup> Scotch-Brite<sup>™</sup> Microfiber Cleaning Cloth
- Software download instructions

#### To unpack the reader:

- 1. Remove the contents from the box and separate the components from the packing material.
- 2. Verify that all the parts described have been received. If any parts are missing, contact 3M Global Technical Services (GTS).
- 3. Keep and store the original packaging in the event that the reader requires shipment back to 3M for maintenance.
- **Note:** If the reader has been stored in a cold environment (i.e. below room temperature), allow the reader warm up for a minimum two hours before powering it on.

DO NOT connect the reader to the computer until you have installed the software. See "Install the software" on page 15.

## Install the software

The reader package contains an instruction sheet with links to an FTP site to download the software components and documentation necessary to install and operate the reader:

- 3M<sup>™</sup> software and SDK
- Reader and software documentation
- Required drivers
- Additional SDKs based on the reader model

#### To install the reader software:

- 1. Download the latest SDK software from the FTP link. Click on the *3M Page Reader SDK x.x.x* Setup.exe link and save the exe file to a known location on the host PC (for example, the desktop).
- 2. Run the downloaded .exe file.

The installation wizard starts.



3. Click **Next** to proceed with the installation.

The software license is displayed.

| Fictise   | read the following license agreement carefully  |   |
|---|---|---|
|   | 3M Software End User License  | ^ |
| THIS IS<br>THE 3M<br>("3M").<br>(both o<br>scope<br>AGREE | A BINDING AGREEMENT BETWEEN THE USER ("USER" or "Customer") AND<br>ENTTY FROM WHICH YOU ACQUIRED THE HARDWARE AND SOFTWARE<br>BY CLICKING ON TACCEPT" AT THE END OF THIS AGREEMENT. THE USER<br>his/her behalf and, in the case of an employee using this Software in the<br>of their employment, as an authorized agent on behalf of his/her employer)<br>S TO ABDE BY THE FOLLOWING TERMS AND CONDITIONS: |   |
| 1. 1.   | Definitions.  | - |
| ● I a   | ccept the terms in the License Agreement  |   |
|   |   |   |

If you accept the License Agreement, select I accept the terms of this license agreement.

4. Click **Next** to proceed with the installation.

The Installation Type dialogue is displayed.



Select whether you want the SDK to be visible to all users or just yourself.

5. Click Next to proceed with the installation.

The Select Components screen is displayed. Click Typical.

| M 3M Page Reader Se<br>Choose Setup Type<br>Choose the setup t | tup 🔤 🔤 🛃   |
|--|---|
| 1  | Typical<br>Installs the most common program features. Recommended for<br>most users.  |
|  | Custom<br>Allows users to choose which program features will be installed<br>and where they will be installed. Recommended for advanced<br>users. |
| <b>N</b>   | Complete<br>All program features will be installed. (Requires most disk<br>space)   |
| Advanced Installer ———   | < Back Next > Cancel  |

6. Select the shortcuts that the installation should create.



7. Click Next.

The Ready To Install window is displayed.

| Ready to Install<br>The Setup Wizard is ready to b                       | begin the 3M Page Reader installation                     |
|--|---|
| Click "Install" to begin the insta<br>installation settings, click "Back | illation. If you want to review or change any of your<br> |
| installation settings, the back  | , click cancer to exit the wizard.                        |
|  |   |
|  |   |
|  |   |
|  |   |
| and Table I.   |   |

8. Click **install** to proceed with the installation.

The wizard installs the software.

A separate installation for the reader device drivers is displayed.



- 9. Review the installation notes for any specific instructions.
- 10. Click **Next** to proceed with the installation.

The device drivers are installed. After the driver installation the final installation page will be displayed.



11. Click Finish.

The installation of the software and drivers is complete.

## **Connect the reader cables**

**Note:** Make sure you install the software (page 15) before connecting the reader.

To install the reader, you need to connect the following cables:

• USB cable – The reader is supplied with a USB 2.0 cable (Type A to Type B). The cable provides both power and data connectivity to the reader.





Type B (connects to reader)

Type A (connects to PC)

 Power cable (optional) – You need to use the optional power cable if you want to use the reader as a powered USB2.0 hub. The Power connector is a latching type that can not accidentally detach as the reader is moved about. To remove the connector, grasp the connector shell and pull away from the reader. The connector shell will slide backward slightly, allowing the connector to disengage from the reader.

#### To connect the reader cables:

- **Note:** Only use the provided USB cable and optional power supply with the reader. Using a nonapproved, third-party USB cable or power supply will void the warranty and may negatively affect operation.
- 1. Connect the USB cable:
  - I. Insert the Type B connector into the USB port located on the back of the reader.
  - II. Insert the Type A connector into a USB port on the host PC.
- 2. If want to attach peripheral USB devices to the reader, you will need to connect the power supply (if you are using the reader as-is, you can skip this step). To connect the power supply:
  - I. Connect the connector from the power supply to the power connector at the rear of the reader. **Do not force.** There is only one orientation that will allow the cable to be connected to the power port.
  - II. Connect the AC cable to a functioning power outlet.

## Power on the reader

To power on the reader press the power switch located on the back of the reader for approximately 0.5 second.

A power-on self-test occurs automatically when the reader powers up. If the reader is installed correctly and is operational, the indicator lights will perform the following boot-up sequence:

- All lights come on briefly at initial power-up.
- During power-up self test the OK light (green) remains on while the Ready light (blue) flashes.
- After approximately 10 seconds, the Ready light (blue) remains on and all other lights turn off

The lights may also indicate the following common communication errors:

- The blue Ready light flashes rapidly if no USB connection is detected.
- The blue Ready and red Error lights flash rapidly if a USB 1.1 connection is detected. The reader will not transfer document images over a USB 1.1 connection. However, contactless and contact chip reading will function over a USB 1.1 connection.

### Test the reader installation

After installing the reader, perform a quick test to ensure the reader is functioning properly and the software was installed correctly.

#### To test the reader:

- 1. Start the application **Page Reader Expo** from the shortcut created during software installation.
- 2. Select a scheme that matches your reader. If you are unsure, select the "ePassport and Images" scheme.

| Schemes   |  |  |  |  |  |
|---|--|--|--|--|--|
| Scheme Listing  |  |  |  |  |  |
| Name  | Description  |  |  |  |  |
| MRZ Only  | Decodes and parses the machine readable zone on a document.                      |  |  |  |  |
| Visible, IR and UV Images   | Displays the range of images taken of the document by the reader.                |  |  |  |  |
| ePassport   | Displays the MRZ panel along side data read from an ePassport.                   |  |  |  |  |
| ePassport and Images  | Shows the ePassport panel with IR, UV and Visible images.                        |  |  |  |  |
| Barcodes  | Decodes 1D and a variety of 2D barcodes.   |  |  |  |  |
| OCR Toolkit   | Allows decoding of any OCR Toolkit plugins currently installed.                  |  |  |  |  |
| AAMVA Licences  | Decodes North American driving licences using their PDF417 barcode.              |  |  |  |  |
| QS1000  | Demonstrates the range of features available on the 3MT QS1000 Full Page Reader. |  |  |  |  |
| MSR   | Receives data from a magnetic stripe card device.                                |  |  |  |  |
|   |  |  |  |  |  |
| Selected Panels Scheme Options Active Plugins Ho  | tkey Shortcut New Scheme Delete Scheme   |  |  |  |  |
| Y AAMVA Driving Licence       Y Barcode Decoder       Y Confirm Image       Y ePasport       Y Infrared Image | IR (no reflections)  |  |  |  |  |
| •   | 4  |  |  |  |  |
|   | Select Back  |  |  |  |  |

- 3. Click Select.
- 4. Verify that the Ready light (blue) is on and the Reader State in the lower left is "Enabled". The reader is ready to accept documents.
- 5. Select the test card (DS-00031 or DS-00034) supplied with the reader.



- 6. Place the test card face down on the document window, aligned with the left guide, with the test card instructions facing up.
- 7. Push the card to the back of the document window until it stops.

Note: Do not move the document during the scanning process.

- 8. Observe the lights during the scanning procedure.
  - The Ready light (blue) turns off and the Busy light (yellow) turns on while the reader scans and processes the data.
  - The OK light (green) turns on, indicating a successful read.
  - The Ready light (blue) turns on, indicating that the reader is ready to scan another document.

The data from the test card is sent to the host computer and the results displayed on the PC screen. If the test is successful, a screen similar to the following screen is displayed.

| ssport  |   | 0.06 seconds  | Machine Reada   | able Zone   | 0.92 second                             |
|---|---|---|---|---|---|
|   | Data Groups           Read           D01         D06         D011         D016           D02         D07         D012         D03           D03         D08         D013         D04         D09         D014           D04         D09         D014         D015         D015         D015 | Validated<br>D01 D06 D011 D018<br>D02 D07 D012<br>D03 D03 D013<br>D04 D09 D014<br>D05 D010 D015 | PASSPORT<br>Full Page/<br>Refer to U  | Family Name<br>BANDERAS<br>Given Names<br>LILIAN  | Document Number<br>012345678            |
|   | Validation<br>☑ Signed Attributes<br>☑ Signature  | Chip Details<br>Chip ID<br>2BC9D410<br>Air Baud Rate<br>424                                     | T   | Sex<br>F<br>Date of Birth<br>01/01/1980<br>Date of Expiry<br>01/01/2025   | Nationality<br>UTO<br>Issuer<br>UTO     |
| <b>UTOBANDERA</b>   | S< <lilian< th=""><th>******</th><th>P<utobander< th=""><th>AS&lt;<lilian<< th=""><th>***************************************</th></lilian<<></th></utobander<></th></lilian<>  | ******  | P <utobander< th=""><th>AS&lt;<lilian<< th=""><th>***************************************</th></lilian<<></th></utobander<> | AS< <lilian<< th=""><th>***************************************</th></lilian<<>                                       | *************************************** |
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## 3. Reading Documents

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader reads the barcode and machine-readable zone (MRZ) text on both identification cards and passports. When a document is properly aligned on the document window, the reader automatically captures an image and then performs optical character recognition (when there is OCR data), followed by barcode recognition.

The AT9000 MK2 Full Page Reader with RFID option can detect and read information encoded on contactless integrated circuits (chips) in passports and ID cards. Whether the chip is in the front or rear cover, the data page, or any other page, the reader's antenna will detect and read the chip. You do not have to turn the book around to ensure the chip is read.

### **Document layout**

Identification cards typically have a photo and basic information on the front and a 3-line MRZ on the back.



Passports have a photo, vital information and a 2-line MRZ on the front.



Machine Readable Zone (MRZ)

### **Reading standard documents**

This section describes proper document placement for typical documents. When reading typical documents the booklet slides under the clip against the document guide.

#### To read a standard document:

- 1. Hold the document open as you place it on the document window.
- 2. Place the booklet or card on the document window close to the left so the left edge is against the document guide and then slide it back so the leading edge is fully inserted at the back of the document window.



The hood was designed to hold a document in a natural semi-opened position. This hands-free function allows you to release the document and focus on the traveler.



- 3. During reading, the document must lie flat against the document window. The leading edge of the booklet or card should be all the way to the back of the document window (and underneath the document clip, if installed). The left edge of the booklet must be against the document guide.
- 4. When the document reaches its proper position, the reader will automatically start scanning the document.

**Note:** The outer half of the booklet must lie flat against the bezel to ensure that any chip located in the back half of the booklet is read properly.

- 5. Observe the indicator lights during the scanning procedure:
  - The Ready light (blue) turns off and the Busy light (yellow) turns on while the reader scans and processes the data.
  - The OK light (green) turns on, indicating a successful read.
  - The Ready light (blue) turns on, indicating that the reader is ready to scan another document.

The data from the document is sent to the host computer.

## 4. Maintenance

The 3M<sup>™</sup> AT9000 MK2 Full Page Reader has no user-serviceable parts but its glass surface must be cleaned on a regular basis. For extensive repairs, return the reader to 3M service depot. See page 32 for more information.

## Powering the reader on/off

To power off the reader, press and hold the power switch on the back panel for 1 second. To power the reader back on, quickly press the power switch for 0.5 s.

## **Cleaning the reader**

Clean the reader regularly to ensure proper performance.



Use a safe cloth that will not damage glass, such as the 3M<sup>™</sup> Scotch-Brite<sup>™</sup> Microfiber Cleaning Cloth (provided). To reorder cleaning cloths, contact Global Technical Services (GTS). See page 32 for more information.

Do not use abrasive cleaners or solvents. These may scratch the glass or damage the plastic.

#### To clean the reader:

- 1. Power off the reader by depressing the power switch and holding for approximately 1 second.
- 2. Remove the hood as described on page 24.
- 3. Clean the document window with a clean 3M<sup>™</sup> Scotch-Brite<sup>™</sup> Microfiber Cleaning Cloth. For stubborn dirt, use a mild glass cleaner or a lightly dampened cloth (water).
- 4. Verify that there are no streaks or smudge spots remaining on the document window.
- 5. Clean the body of the reader with a lightly dampened cloth (water).
- 6. Turn on the reader by quickly pressing the power switch.
- 7. Verify that the power-up self test performs correctly. For more information, see "Power on the reader" on page 19.

## Removing the document hood

You can remove the document hood for convenience, to scan oversized documents, or to access the document glass for cleaning or replacement. The 3M<sup>™</sup> AT9000 MK2 Full Page Reader can compensate for ambient light in most bright office environments. However, unless you need to scan an oversized document, you should always leave the document hood attached. The document hood protects the glass and also improves scan quality and speed by reducing the amount of ambient light.

#### To remove the document hood:

- 1. Lift up on the side tabs.
- 2. Unsnap the left side of the hood and remove.



3. To re-attach the document hood, ensure that the pin on the right of the hood is correctly seated before pressing down on the tabs on the left of the hood.

## **Replacing the document glass**

You can replace the glass in the document window if it becomes damaged. See page 32 for information about ordering a replacement.

```
A CAUTION
```

Only an authorized, trained technician should perform this procedure. Failure to correctly follow the instructions could result in injury or cause damage to the equipment.

#### To replace the document window glass:

- 1. Remove document hood, as described on page 24.
- 2. If an optional module is attached to the back of the reader:
  - I. Remove the two screws securing the module.
  - II. Remove the center screw securing the document guide and clip assembly.

If there is no optional module, remove the three retaining screws located on the back of the panel.

3. Slide off the document guide and document clip assembly.



4. Gently slide the glass to the back of the reader while being careful not to damage or remove the rubber gasket seal.



5. Insert the replacement glass. Ensure that the beveled edge on the glass is inserted toward the front of the reader.

**NOTE:** It is important that the internal components be free from dust or other contamination. If any dust is present, use compressed air to remove it from the optical chamber.

- 6. Re-attach the document guide. Ensure that the guide hooks into the slot in the enclosure top.
- 7. Re-attach the document hood. Ensure that the pin on the right of the hood is correctly seated before pressing down on the tabs on the left of the hood.

## Adjusting the document clip height

You can adjust the default height of the document clip to better accommodate your documents. The default height is controlled by a small set screw (1/8-inch). At the factory the clip is set such that a single sheet of paper (approx. 0.004 inches) will freely slide under the clip, whereas an ID card (approx. 0.03 inches) will just make contact with the clip.

#### To adjust the document clip height:

- 1. Remove document hood, as described on page 24.
- 2. Lift and hold the document clip to its maximum height.
- 3. Using an 1/8-inch hex screwdriver, adjust the height of the set screw (located near the top-left corner of the document glass):
  - Turn clockwise to lower the default height of the document clip
  - Turn counter-clockwise to raise the default height of the document clip



- 4. Release the document clip.
- 5. Re-attach the document hood. Ensure that the pin on the right of the hood is correctly seated before pressing down on the tabs on the left of the hood.

## A. Specifications

| Physical<br>Specifications      | Dimensions          | Length:  |  |  |
|---------------------------------|---------------------|--|--|--|
|                                 |                     | Without smartcard module: 19 cm (7.5 inches)<br>With smartcard module: 20 cm (8.0 inches)<br>Width: 16.2 cm (6.4 inches)<br>Height: 15.7 cm (6.2 inches) |  |  |
|                                 | Imaging Window      | 125 x 88 mm (4.92 x 3.47")<br>4.0 mm (0.157") tempered glass *   |  |  |
|                                 | Weight              | 1.25 kg (44 ounces)  |  |  |
| Electrical                      | Input voltage       | 5 V DC, from external power supply or USB 2.0 host port  |  |  |
| Specifications                  | Power consumption   | Less than 2.5W (USB 2.0 powered)   |  |  |
|                                 | Connector           | 3-pin locking  |  |  |
| Environmental<br>Specifications | Temperature         | Operating: 0°C to 40°C (32°F to 104°F)<br>Storage: –20°C to 50°C (–4°F to 122°F)   |  |  |
|                                 | Humidity            | Operating: 20% to 80% (non-condensing)<br>Storage: 5% to 95% (non-condensing)  |  |  |
| Communication                   | Interface           | USB 2.0, 480 Mbit/s "High Speed"   |  |  |
| Protocols                       | Host USB Power      | Reader can be powered from a single host USB 2.0 connector   |  |  |
|                                 | USB connectors      | One USB Type-B connector (host)<br>Two USB Type-A connectors (peripherals)   |  |  |
|                                 | USB cable length    | 2.00 m (79 inches)   |  |  |
|                                 | Aux. USB power      | 5V DC, 500mA per port (with external power supply only)  |  |  |
|                                 | RF Chip             | ISO 14443-2, 3, 4 Type A and B with PC/SC driver   |  |  |
| Optional Power                  | Input voltage       | 100V to 240V AC +/-10%   |  |  |
| Supply Specifications           | Line frequency      | 47 Hz to 63 Hz   |  |  |
|                                 | Cable length        | Power supply cable: 1.3 m (52 inches)<br>AC line cord: 2.0 m (78 inches)   |  |  |
|                                 | Power rating        | 15W  |  |  |
| Smart Card                      | Protocol            | T=1, T=0   |  |  |
| Interfaces and                  | Frequency           | Up to 8 MHz (PPS, DI parameter)  |  |  |
| Protocols                       | Communication speed | Up to 344,105 bit/s (PPS, FI parameter)  |  |  |
|                                 | ISO Support         | 7816 Class A and AB  |  |  |
|                                 | Contact             | Sliding contact  |  |  |

|  |            | 8 contacts - ISO location   |
|--|------------|---|
| Regulatory<br>Information and<br>Standards | Safety     | IEC/EN 60950-1: 2008 Device Safety<br>EN 50371: 2002 Human Exposure to Low Power Electronic<br>and Electrical Apparatus   |
|  | EMC        | FCC Part 15, sub-part J, Class A<br>ETSI EN 300 330-2, V1.3.1 (2006-04)<br>ETSI EN 301 489-3, -1 V1.4.1 (2002-08)<br>IEC/EN 55022:1998 (CISPR22) Radiated/Conducted<br>Emissions<br>IEC/EN 61000-3-2:2000 Harmonics<br>IEC/EN 61000-3-2:2001 Flicker<br>IEC/EN 55024:1998 (CISPR24) ITE Immunity<br>61000-4-2 ESD<br>61000-4-3 Radiated Immunity<br>61000-4-4 EFT<br>61000-4-5 Surge<br>61000-4-6 Conducted Immunity<br>61000-4-11 Voltage Dips and Interruptions |
|  | Directives | 2006/95/EC Low Voltage Directive<br>2004/108/EC EMC Directive<br>1999/5/EC RTTE Directive<br>2002/96/EC Waste Electrical and Electronic Equipment<br>(WEEE) Directive<br>2011/65/EC Restriction of Hazardous Substances (RoHS2)<br>Directive <sup>1</sup>   |

<sup>&</sup>lt;sup>1</sup> RoHS Compliant" means that the 3M<sup>™</sup> AT9000 MK2 Full Page Reader ("Product") placed on the EU market after January 2, 2013 meets the requirements applicable to electrical and electronic equipment ("EEE") in the recast RoHS Directive 2011/65/EU, including that the Product does not contain any of the following substances in excess of the maximum concentration values ("MCVs") in Directive 2011/65/EU, annex II: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. The MCVs are by weight in homogeneous materials. This information related to material content represents 3M Traffic Safety and Security Division's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M. Additional information on the Product's compliance with RoHS EEE requirements can be provided upon request.

## **B.** Troubleshooting

Use the following table to identify and correct common issues encountered when using the reader.

| Symptom  | Possible Causes  | Recommended Actions  |
|--|--|--|
| The LEDs do not come on during power up.                   | There is no power to the reader.                                     | Momentarily depress the power switch   |
|  |  | Verify the reader is connected to a USB 2.0 host port.   |
|  | The unit is damaged.   | Follow the procedure outlined in "Returning the reader for maintenance" on page 42.  |
| The Ready LED is   | The USB cable is not connected.                                      | Verify that the cable is installed.  |
| continuously blinking.                                     | The system has no USB 2.0 capability.                                | Verify that your PC is USB 2.0-compliant.  |
| The Ready and Error LEDs are continuously blinking.        | The system has only USB 1.1 capability.                              | Install the reader on a PC that supports USB 2.0.  |
| The reader is not<br>communicating with host PC<br>system. | The cable is not properly<br>connected or USB drivers are not        | Verify that the USB cable is connected to the host.  |
|  | property installed.  | Verify that the USB driver is installed.   |
|  |  | Verify that only one reader is connected to<br>the host system and only one instance of<br>the host application is running.  |
| The Error LED illuminates<br>when a document is scanned    | The document is non-machine readable.                                | This is a normal condition when there is no machine readable data and only the image is captured from the document.  |
|  | The document is poorly printed or does not conform to specification. | The reader is designed to read documents<br>that are poorly printed. However, some<br>documents are of such poor quality that the<br>reader will not be able to process the OCR<br>data. |
|  |  | Verify the document conforms to ICAO<br>9303 or OCR B font requirements  |
|  | High ambient light.  | Ensure that ambient light compensation is enabled in the software SDK  |
|  |  | Re-orient the reader so that bright light does not fall directly on the document window.   |
|  | The unit is not configured to read the document being scanned.       | Verify the reader configuration with technical staff.  |
|  |  | Contact Global Technical Services (GTS) at 3M.   |
|  | The document is not orientated correctly on the scanning window.     | For details on document placement, see<br>"Reading standard documents" on page<br>22.  |

| The demo application is not working.  | The software is installed incorrectly.  | The application may already be running.<br>Verify that only one copy of the application<br>is running.<br>Remove the existing application & re-install<br>software. For more information see the<br>Software Installation section |
|---|---|---|
|   | You do not have PC Administrative rights.                                       | Consult with your IT support representative.  |
| LEDs do not change after reading an RF chip   |   | This is a normal condition. RF status is displayed only on the host screen.   |
| Reader becomes<br>unresponsive  |   | Restart the PC application or disconnect<br>and reconnect the USB plug from either<br>the PC or the reader.   |
| USB peripherals attached to<br>the reader do not power on or<br>do not function correctly | You need to use the external<br>power supply when attaching<br>external devices | Verify the AC power source.<br>Verify that the AC cable is connected to the<br>AC power source.<br>Verify that the power cable is connected to<br>the power supply port located on the back<br>panel.                             |

## **C.** Customer Service

If you cannot solve the problem after following the instructions on page 39, contact 3M's Global Technical Services (GTS).

### **Before contacting GTS**

Be prepared to provide the information required to properly diagnose the problem:

- A detailed description of the problem
- A detailed description of the actions taken to correct the problem
- The serial number of the reader (located on the reader's bottom panel)

### **Contacting GTS**

Once you have the above information, contact GTS via one of the following methods:

#### **The Americas**

| Direct line: | +1 613-722-3629    |
|--------------|--------------------|
| Main number: | +1 613-722-2070    |
| Fax:         | +1 613-722-2063    |
| E-mail:      | 3M-AiT-gcs@mmm.com |

### **United Kingdom**

| Direct line: | +44 (0) 1635 264 140 |
|--------------|----------------------|
| Main number: | +44 (0) 1635 580 666 |
| Fax:         | +44 (0) 1635 369 40  |
| E-mail:      | gcs-uk@mmm.com       |

#### Asia, Pacific and Australia

| Telephone: | +65 6450 8888 |
|------------|---------------|
| Fax:       | +65 6458 5432 |

## Returning the reader for maintenance

In the event of a suspected problem with 3M equipment, please use the following procedure.

#### To return a reader for maintenance:

- 1. **Diagnose** The system manager will determine that there is an actual fault with the equipment which cannot be corrected by following the procedures in this document or with local in-house knowledge.
- 2. Initiate Call The system manager should contact 3M GTS via telephone, fax, or email. GTS will request a detailed description of the problem along with the serial number of the unit. It is the customer's responsibility to include or have on hand all pertinent information.
- Response/Call Back A GTS representative will discuss with the system manager to determine the problem. If the problem can be corrected locally by the system manager with the guidance of the GTS representative, no further action will be required.
- 4. **Return Authorization** If the problem cannot be corrected via telephone assistance, the GTS representative will issue a Return Materials Authorization (RMA) number. The RMA number will be used to track the failed reader, along with verification of the location of the service depot to where it should be sent.
- 5. **Return** The end user system manager will carefully disconnect the defective equipment. The reader should ideally be packaged in its original packing box. If not, a suitable box with sufficient packing material should be used to minimize damage during transit.

The RMA number should be prominently displayed on the shipping container in which the reader is being returned. This reference number will ensure prompt processing of the equipment once it arrives at 3M.

The CUSTOMER is responsible for insurance coverage on the reader in case of loss or damage during transit to 3M. The reader should be returned to the 3M designated service depot.

- 6. **Shipping Instructions** Four copies of a commercial invoice, a packing slip, a pro forma invoice, or the following information, typed on letterhead, must be sent with the reader:
  - Description of equipment, including serial numbers
  - Quantity
  - Value and Country of Origin
  - Exporter (customer's company)
  - Consignee (3M)

Please affix the instructions to the outside of the container.

7. **Repair** – When the defective equipment is received at the service depot, the reader will be repaired, tested and returned to the CUSTOMER'S central depot. Subject to unavoidable delays, this effort should not exceed 10 business days (exclusive of shipping time).