Gemalto OEM Document Reader AT10K User Guide

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Preface

This user guide describes the features and functions of the Gemalto OEM Document Reader AT10K. (Models PV71-XX-XX-XX)

This manual is intended to be used by kiosk hardware developers and integrators. It provides the mechanical and electrical specifications required to incorporate the reader into a kiosk as well as guidance on the operation, troubleshooting and maintenance of the reader.

Revision History

Version	Date	Description
A	June 2018	Initial release
A1	July 2018	FCC and Canada EMC notice

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.

In some situations AC line transients or Electrostatic Discharge may cause a loss of communication between the document reader and the host application. If this occurs, it may be necessary to restart the host application, or unplug and reconnect the USB cable, or power cycle the document reader in order to restore operation.

For further regulatory information or copies of certificates contact your local Gemalto representative or direct your questions to technical.service@gemalto.com

EMC Compliance Europe

The Product meets the following European Council Directives:

- Scanner: EMC (2014/30/EC), RFID option: Radio Equipment (RED) (2014/53/EC)
- PSU: EMC (2014/30/EC), LVD (2014/35/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 Gemalto. Unauthorized modifications may void the authority granted under FCC rules permitting the operation of this device.
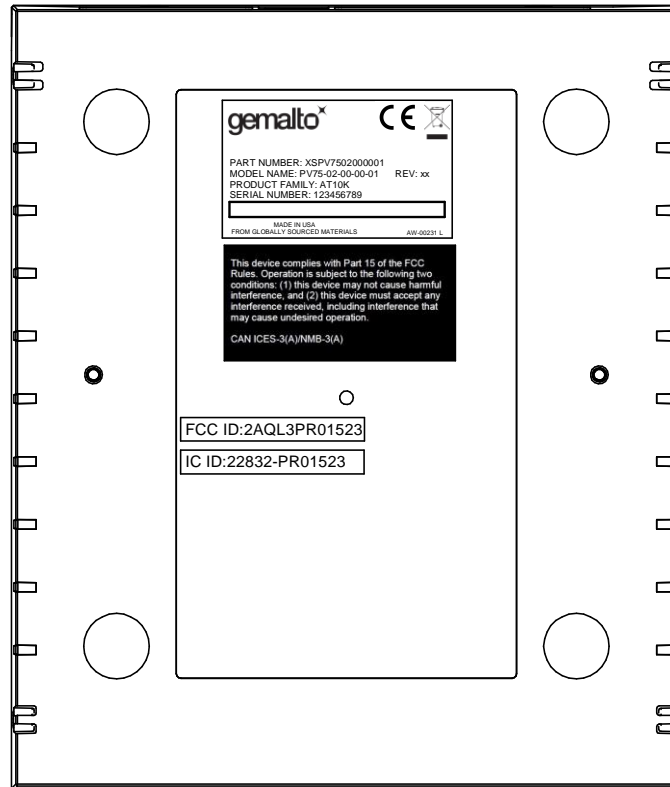
FCC Labelling

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: 2AQL3PR01523

Canada Labelling

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1) L'appareil ne doit pas produire de brouillage;

2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Canadian ID: 22832-PR01523

Disposal - European Directive 2011/65/EU

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.

Do not send equipment back to Gemalto 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 Gemalto OEM Document Reader AT10K. 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.

⚠ WARNING — Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ 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.

⚠ WARNING

To reduce the risk associated with hazardous voltage which, if not avoided, could result in death or serious injury:

- Do not use the reader with any AC power supply other than the provided Gemalto AC power supply.
- Do not use AC power supply and/or power cord if it is 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.

⚠ CAUTION

To reduce the risks associated with environmental contamination which, if not avoided, could result in minor or moderate injury:

- Dispose of electronic waste in accordance with all applicable regulations.
- Only an authorized, trained technician should perform change the glass. Failure to correctly follow the instructions could result in injury or cause damage to the equipment. Readers with broken glass should be sent to a repair centre for cleaning and safe disposal of the broken glass pieces.
- 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.

NOTICE

- 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.

- Use a safe cloth that will not damage glass, such as the provided Microfiber Cleaning Cloth. To reorder cleaning cloths, contact Global Technical Services (GTS). Do not use abrasive cleaners or solvents. These may scratch the glass or damage the oleophobic coating.

- The document clip side piece increases the width of the reader and therefore any cut-out for the reader needs to accommodate the extra size. Only use the screws provided – longer screws will damage the internal reader structures

- Please consult Gemalto to ensure that your kiosk design is optimal. For detailed information about reader dimensions, clearances, mounting hardware, document illumination areas, and RFID performance, please see the Gemalto OEM Document Reader AT10K drawing DT-01953.

- In some situations AC line transients or Electrostatic Discharge may cause a loss of communication between the document reader and the host application. If this occurs, it may be necessary to restart the host application, or unplug and reconnect the USB cable, or power cycle the document reader in order to restore operation.

Table of Contents

1. Introduction

The Gemalto OEM Document Reader AT10K is used to inspect and image travel documents, including electronic travel documents and 1D and 2D barcodes used by the airline industry on paper and mobile device boarding passes. The reader's low-profile and simple shape make it ideal for integration with self-service kiosks, counters and eGates at airports and other locations such as railway terminals.

Gemalto OEM Document Reader AT10K
with open document scanning

Key Features

The Gemalto OEM Document Reader AT10K eases the integration into OEM devices:

- Small size and simple design with multiple mounting points to simplify integration into gates, kiosks and desks and facilitate mounting/dismounting for maintenance

- "Landing lights" style user feedback LEDs with red cross/green tick indicators make it clear how to use the reader even for infrequent users

- Flat top – easily allows mobile phones, tablets and paper documents to be placed for scanning

- ID cards and barcodes can be placed anywhere, any angle on the glass window and read

- No moving parts and robust construction for longer service life

- Low height, designed to easily integrate in desktop kiosks, can be placed under a monitor

- Provides two USB2.0 ports for attaching additional biometric devices like a webcam or fingerprint reader (requires external PSU)

- Can be powered from a single USB 2.0 port or an external PSU

- Glass specified to resist scratching and with an easy clean Oleophobic coating

- Optional high performance hardened Corning® Gorilla® Glass

Supported Documents and Formats

The Gemalto OEM Document Reader AT10K reads a wide-range of documents and formats:

- Supported documents include passports, visas, ID cards and all other ICAO-standard travel documents, as well as many non-ICAO variations

- Optional Integrated ePassport (RFID chip) reader so kiosk can read the Machine Readable Zone (MRZ) and smartcard chip in one operation.

  - Contactless IC reading for ePassports (LDS 1.7 & 1.8) including basic access control (BAC), passive/active authentication (PA/AA), Chip Authentication (CA), Terminal Authentication (TA), extended access control (EAC v1/v2), supplementary access control (SAC) and PACE-CAM are supported. The SDK provides writing capability using APDUs

  - Contactless IC reading for eDL & iDL (electronic driving licenses) up to DG14 including basic access control (BAP v1), Password Authenticated Connection Establishment (PACE), passive/active authentication (PA/AA), Chip Authentication (CA), Terminal Authentication (TA), supplementary access control (SAC) and extended access control (EAC v1) are supported

- Reads 1D and 2D barcodes (PDF417, Aztec, QR® codes and Data Matrix^{TM}), SDK includes an AAMVA decoder

- Reads home print and mobile (cell) phone boarding passes (BCBP) and 1D/2D barcodes.

- Data capture from HRZ and non-ICAO documents (optional software package)

- Enhanced document detection and authentication software (optional software package)

Imaging Features

The Gemalto OEM Document Reader AT10K has the following imaging features:

- True-colour and anti-glare technologies deliver accurate, colour calibrated 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 (B900 band IR), ultra-violet (UV-A 365nm)

- Captures full-colour or grey-scale images (370 and 700 DPI camera options)

- Flexible software interface (Gemalto Document Reader SDK) allows host application to select which illumination sources to use, image type, image compression, ePassport LDS data and validation, photo extraction, etc.

Common Applications

Typical uses of the Gemalto OEM Document Reader AT10K include:

- Airline self-service check-in and bag-drop

- eGates for Automatic Border Control

- Advanced Passenger Clearance kiosks

- Boarding gates including reading boarding passes including from cellphones and home-print

- Electronic manifests with traveler photo images for API data collection by airlines, cruise lines and ferries

- Hotel check-in and reporting and to meet governement regulation

- ID checks for residency, right to work, employee on-boarding, right to rent and money laundering regulations in banks, real estate agents, recruitment consultants, etc

- Car rental ID checks on driving licences (requires additional software module for non-AAMVA barcoded documents)

- ePassport and other travel document reading and authentication

- Scanning full-colour or grey-scale images of travel documents

- Travel document quality assurance during document issuance

Security Features

The Gemalto OEM Document Reader AT10K can help authentication software detect forged or counterfeit documents. Using Infra-Red light reveals security patterns and features such as Anti-Stokes inks and can highlight some MRZ substitutions.

Reading the UV features printed in fluorescent inks on a document provides identity verification software with colour images of covert document security features.

The following images show the different light sources supported by the document reader.

Visible Image
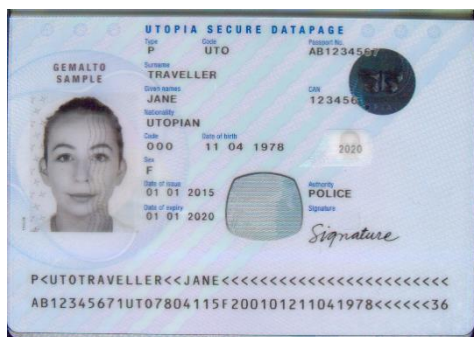
Infrared Image

Ultraviolet Image

True-colour/Anti-glare Technologies

Anti-glare technology, ambient light compensation and true colour imaging ensure that the Gemalto OEM Document Reader AT10K will deliver superior, accurate images of challenging documents in demanding conditions, including those with holographic laminates. Studies have shown that reproducible colours and contrast are important for document authentication and Gemalto Document Readers are both flat field corrected and have colour calibration. Ambient light removal enables the capture of high quality images, including UV, without a hood.

Without Anti-Glare Technology

With Anti-Glare Technology
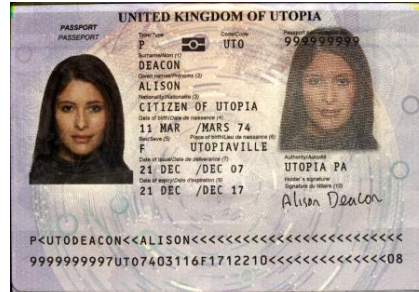
Overhead Ambient Lighting

Ambient Light Removed

2. Product Description

The reader is a self-contained device designed to be incorporated into a self-service kiosk terminal. The main hardware features are:

- A document window/platern for placement of documents to be read

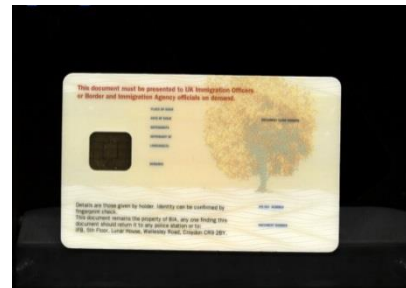- LEDs to indicate document reading status

- A back panel containing communication, USB hub, and power connection ports

- Attachment points for mounting the reader to a kiosk chassis

Document Window

The document window is a glass surface measuring 125 x 88 mm located on top of the reader. Users place documents on the document window, imaging side down, and slide them to the back of the document window to scan them. The document window is slightly larger than ICAO 9303 requirements to accommodate oversized documents.

The reader has document alignment guides on the left and rear and the user is advised to push the document squarely into the far left corner for the most consistent reading results. Alternative alignment guide formats, including without guides, are available on request.

Back Panel

The back panel features the USB host communication port, 2 USB ports for peripherals, a power supply connector and a power switch.
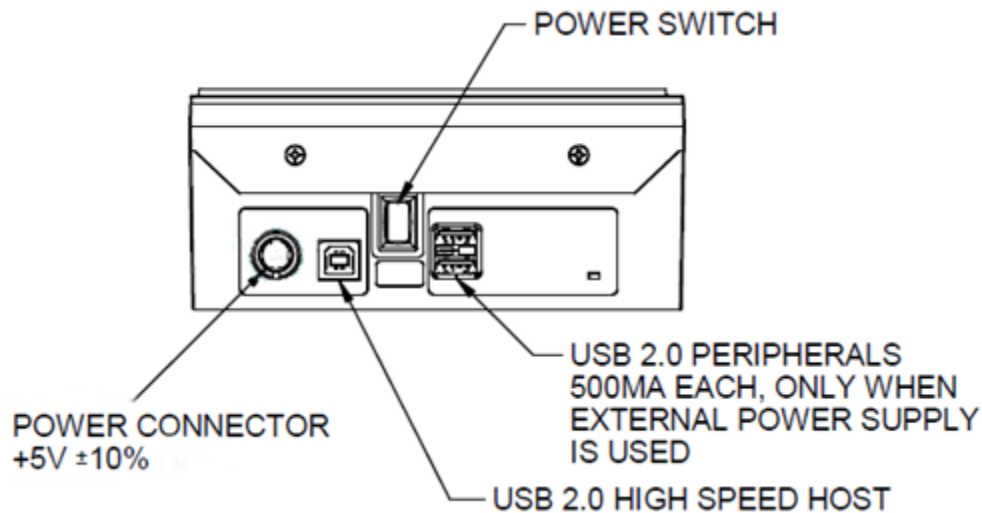
USB Ports

Communication to and from the host PC is via USB 2.0. The USB host interface is a standard Type B connector.

A built-in USB hub and two auxilliary USB 2.0 Type A connectors allow you to connect additional USB peripherals such as a mouse, keyboard, printer, etc. The two USB peripheral connectors are capable of supplying +5V DC (500mA) to the peripherals (e.g. 500mA to each peripheral) when the reader is powered from an external power supply.

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.

- Linux and macOS operating systems is not supported

A power supply is included with each Gemalto OEM Document Reader AT10K. Gemalto recommends the use of the supplied power supply for best performance.

Power Switch

The power switch is a latching rocker type. Pushing the power switch to the On position allows the reader power to be locked On for Kiosk applications.

Power Connector

The supplied power supply is Underwriters Laboratory (UL)-Listed and capable of providing +5V DC at 3A. The connector pinouts are shown in the following figure:

+5V
Ø2.5MM

GND
Ø5.5MM
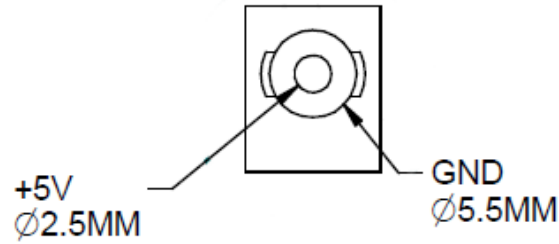
Power Supply Connector

⚠ WARNING   **Do not use the reader with any AC power supply other than that provided by Gemalto.**

Status Indicator LEDs

The status LEDs are designed to make the reading process more intuitive for untrained users such as infrequent travellers. The LEDs indicate the reader's status and the progress of the read until the point when the document can be removed from the reader. These LED sequences have been designed to help occasional users place documents correctly. During a read the following states can be seen:

LED Colour	Status	Description
Yellow – landing lights	Ready	Reader is ready to scan a document
Yellow – progress bar	Busy	Reader is scanning a document and processing the data.
Green tick	Successful read	A known document type was presented and processing was successful.
Red cross	Some data failed to read	Document is of an unknown type or did not process properly.

The LEDs are also used to indicate self-test states during power up as follows:

LED Colour	Description
All LEDs off	Hardware failure, return to service centre if fault persists.
Red cross flashing	Self-test failure, error can be determined from flash sequence, return to service centre if fault persists.
Red cross on	Self-test failure, return to service centre if fault persists.
2 Yellow LEDs blinking	Device preparing for operation.
Red cross slow flash	Power up sequence failed to finish, return to service centre if fault persists.
Green tick flashing	USB cable is not connected and optional power supply is in use.
Yellow – landing lights	Reader has powered up correctly, is connected to the host application and is ready to scan a document.

3. Kiosk Enclosure Design

To assist in the mechanical design, 3D CAD models of the reader are available in all popular formats. Contact your sales representative or Gemalto Technical Services for details.

Please consult Gemalto to ensure that your kiosk design is optimal.

NOTICE   **For detailed information about reader dimensions, clearances, mounting hardware, document illumination areas, and RFID performance, please see the Gemalto OEM Document Reader AT10K drawing DT-01953.**

Mounting

The Gemalto OEM Document Reader AT10K can be mounted directly to a kiosk or eGate via two M3 machine screws on the bottom and/or side faces. Ensure appropriate length screws are used that do not damage the inside of the reader. Alternatively, the reader may be mounted to a bracket (not supplied by Gemalto) to adapt to the required mounting geometry.
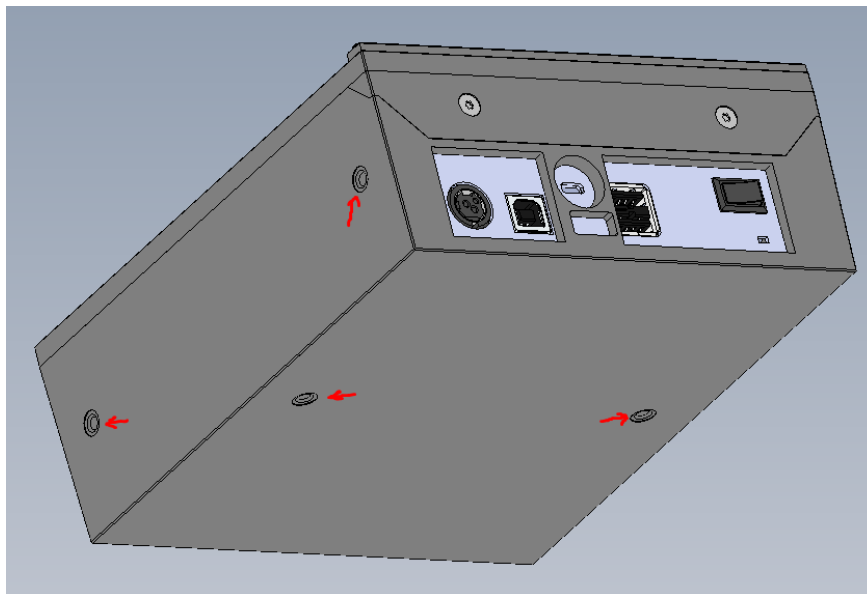
Mounting points

Fascia Design

The Gemalto OEM Document Reader AT10K can be mounted such that its glass surface is flush with the kiosk or eGate surface.

Note: The performance of RFID can be severely impacted by the presence of metal (e.g. stainless steel) close to the antenna. For readers equipped with RFID, a minimum no-metal distance of 12 mm around the perimeter of the reader, must be ensured. The reader may also be mounted such that its glass surface is raised approximately 12 mm above the surrounding.

Hood/Cover Requirements

The Gemalto OEM Document Reader AT10K has anti-glare and ambient light compensation technologies that enable you to design kiosks that do not require ambient light hoods or covers over the document window, thus simplifying end-user interaction.

When designing the Gemalto OEM Document Reader AT10K into a kiosk, it is important to remember that any kiosk features which are within the reader's field of view AND are illuminated by the reader's internal illumination LEDs may be inadvertently imaged by the reader and interfere with correct document detection or processing.

To ensure optimal performance the kiosk design should ensure there is nothing inside the reader's field of view or, if this is not possible, any objects within the field of view should be flat black.

> **Note:** Please consult the Gemalto OEM Document Reader AT10K Integration drawing DT-01953 for detailed information about document illumination areas.

Document Clip

The Gemalto OEM Document Reader AT10K has an optional adjustable clip that helps to hold documents flat to the surface of the glass.

A spine hold down clip can be provided for either the left, right or both sides

To attach the document clip:

The document clip side piece increases the width of the reader and therefore any cut-out for the reader needs to accommodate the extra size.

NOTICE   **Only use the screws provided – longer screws will damage the internal reader structures**

1. Using document clip option, place the clip side piece against the reader and secure with the 2 screws provided.

4.   Installing the Reader

This chapter explains how to install the Gemalto OEM Document Reader AT10K 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 an USB 2.0 port (the reader will not work if connected to a USB 1.1 port)

- A PC running 32 or 64 bit versions of Microsoft® Windows® XP SP3, Windows Vista®, Windows® 7, Windows® 8.1 or Windows® 10, Linux® builds for Ubuntu 10.04 and CentOS 6, 32 bit only. Additionally macOS is supported (contact Gemalto for more details). An external PSU is required for Linux and macOS.

- 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.

Unpack the Reader

Each reader package consists of:

- Gemalto OEM Document Reader AT10K

- Power supply unit (PSU) and AC cable

- Test card

- USB communication cable

- Micro fibre 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 Gemalto Technical Services.
3. Keep and store the original packaging in the event that the reader requires shipment back to Gemalto 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" section below.

Install the Software

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

- Gemalto Document Reader 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 link. Click on the *Gemalto Document 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 and follow the on screen instructions.

Connect the Reader Cables

Note: Make sure you install the software 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. The cable provides both power and data connectivity to the reader.

Type B (connects to reader)   *Type A (connects to PC)*

- Power supply (optional) – **You need to use the optional power supply (PSU) if you want to use the reader as a powered USB2.0 hub and with Linux and macOS.** The Power connector is a latching type that cannot accidentally detach as the reader is moved about. To remove the connector, grasp the connector shell and pull away from the reader.

To connect the reader cables:

Note: Only use the provided USB cable and optional PSU with the reader.

⚠ **CAUTION**   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.

WARNING To reduce the risk associated with hazardous voltage which, if not avoided, could result in death or serious injury:

- Do not use the reader with any AC power supply other than the provided Gemalto AC power supply.

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 you 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.

3. Turn the reader on using the rocker switch.

    A power-on self-test occurs automatically during power up. If the reader is installed correctly and is operational, the indicator light should illuminate the green tick. If another LED shows then consult page 15 on LED status.

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 **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.

3. Click Select.

4. Verify that the yellow LEDs are in landing lights sequence 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 yellow LEDS change from landing lights sequence to prgress bar sequence while the reader scans and processes the data. Ensure that the document is held still whilst reading.

●   The OK light (green tick) turns on, indicating a successful read.

●   The yellow LEDs return to landing lights sequence, 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.

5. Reading Documents

This section describes the proper document placement for travel documents:

1. Hold the document face down. Note:

   - For passports and booklet-style documents, open the document and ensure the data page is facing towards the reader and downwards.

   - For boarding passes, make sure its barcode is oriented towards the reader. Place the document over the glass window, do not move or hover it.

   - For mobile devices ensure the screen is on and place the screen down over the glass window, holding it still for approx. 2 seconds or until the user LEDS indicate the device can be removed. Some devices require the screen brightness to be turned high. The device can be held up to 1cm from the glass. With tablets ensure that the barcode is over the glass window.

2. Place the document on the glass document window.
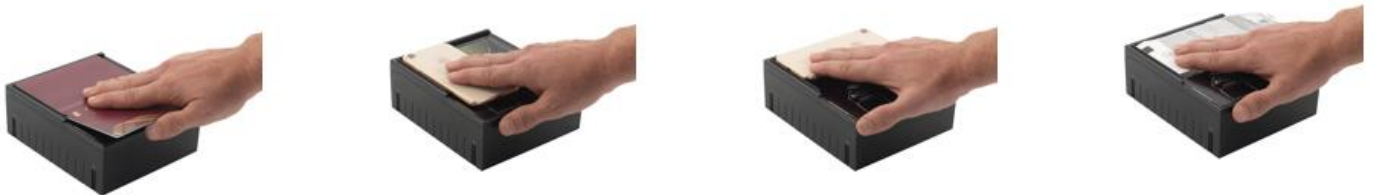
3. Push the document until the leading edge is all the way to the back, far left corner. When the document reaches its proper position, the reader will automatically start scanning the document.

   Note: Make sure the document lies flat against the document window and held still during reading.

4. Observe the indicator lights during the scanning procedure:

   - The yellow LEDS change from landing lights sequence to progress bar sequence while the reader scans and processes the data. Ensure that the document is held still whilst reading.

   - The OK light (green tick) turns on, indicating a successful read.

   - The yellow LEDs return to landing lights sequence, indicating that the reader is ready to scan another document.

5. Watch the kiosk screen to ensure the document passes inspection.

6. Remove the document.

Reading RFID documents

When equipped with the RFID option the reader will detect the presence of a contactless RFID chip and will read the contactless data. Reading RFID data takes place at the same time as optical imaging, so the document reading procedure is identical to the procedure described above but depending on the document may take typically 4 to 12 seconds, the yellow progress bar LEDs turning off will show when the document can be removed.

6. Maintenance

The Gemalto OEM Document Reader AT10K has no user-serviceable parts but its glass surface must be cleaned on a regular basis. For extensive repairs, return the reader to Gemalto repair center. See page 29 for more information.

Cleaning the reader

Clean the reader regularly to ensure proper performance.

NOTICE **Use a safe cloth that will not damage glass, such as the provided Microfiber Cleaning Cloth. To reorder cleaning cloths, contact Global Technical Services (GTS).**

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

To clean the reader:

1. Power off the reader using the power switch on the back panel.

2. Clean the document window with a clean microfibre cloth. For stubborn dirt, use a mild water based glass cleaner suitable for touchscreen displays on a lightly dampened microfibre cloth.

3. Verify that there are no streaks or smudge spots remaining on the document window.

4. Clean the body of the reader with a microfibre cloth which has been lightly dampened with water.

5. Turn on the reader by quickly pressing the power switch.

6. Verify that the power-up self test performs correctly.

Replacing the document glass

You can replace the glass in the document window if it becomes scratched.

⚠ 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. Readers with broken glass should be sent to a repair centre for cleaning and safe disposal of the broken glass pieces.**

To replace the document window glass:

1. Remove the two retaining screws located on the back of the panel.

2. Lift the document clip and then slide off the glass and plastic edge as one piece.
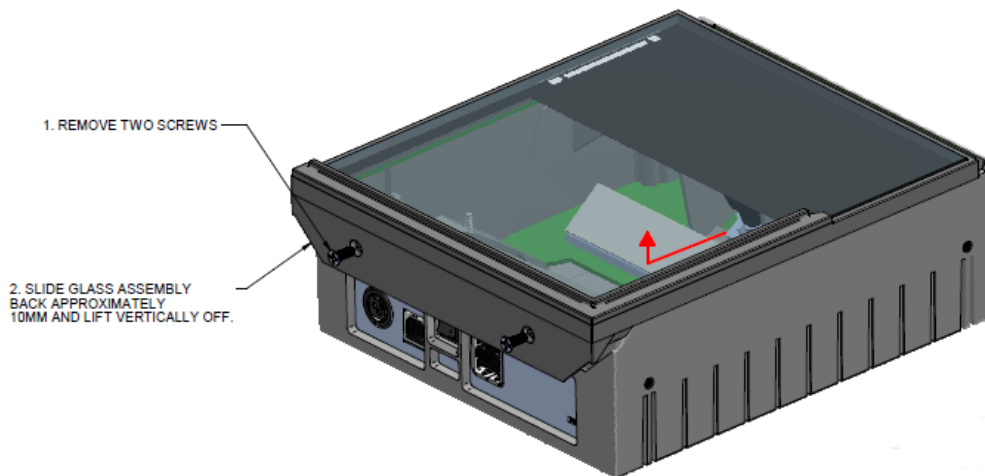
The glass assembly slides towards the rear, be careful not to damage or remove the rubber gasket seal. The status/RFID PCB should stay in place.

3. Check that the status/RFID PCB is correctly located before reassembly. It should sit inside the reader and be pushed forward into the retaining clips (left picture arrowed). The close-up view shows (1) the PCB correctly positioned against the clip and (2) correctly seated into the reader chassis.

4. Align the front of the glass surround over the front of the reader and lower the rear of the glass down to mate with the lower chassis. You should not need to use force.

   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.

5. Secure in place with the two screws.

7. Specifications

Physical Specifications	Dimensions	Length: 17.1 cm (6.7") Width: 14.5 cm (5.7") Height: 6.5 cm (2.6")
	Imaging Window	125 x 88 mm (4.92 x 3.47") 4.0 mm (0.157") low iron glass with oleophobic coating
	Weight	1.1 kg (2.42 lbs)
Electrical Specifications	Input voltage	5 V DC, from external power supply or USB 2.0 host port
	Power consumption	Less than 2.5W (USB 2.0 powered)
	Connector	Barrel, locking
Environmental Specifications	Temperature	Operating:–10°C to 50°C (14°F to 122°F) Storage: –20°C to 50°C (–4°F to 122°F)
	Humidity	Operating: 20% to 95% (non-condensing)
	Dust*	IP52 rating for dust ingress protection in the optical chamber
Communication Interfaces and Protocols	Interface	USB 2.0, 480 Mbit/s "High Speed"
	Host USB Power	Reader can be powered from a single host USB 2.0 connector (DC power supply also available)
	USB connectors	One USB B connect (host) Two USB A connectors (peripherals)
	USB cable length	2.00 m (79 inches)
	Aux. USB power	5V DC, 500mA per port (with external power supply only)
Power Supply Specifications	Input voltage	100V to 240V AC +/-10%
	Line frequency	47 Hz to 63 Hz
	Cable length	Power supply cable: 1.3 m (52 inches) AC line cord: 2.0 m (78 inches)
	Power rating	15W
	PSU Efficiency	Level VI
Regulatory Information and Standards	Directives*	2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2014/53/EU RE Directive 2002/96/EC Waste Electrical and Electronic Equipment (WEEE) Directive 2011/65/EU Restriction of Hazardous Substances (RoHS2) Directive

* Testing in progress

A. 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.	Verify the reader is connected to a USB 2.0 host port and/or external power supply.
	The reader is damaged.	Follow the procedure outlined in "Returning the reader for maintenance".
	The power switch is in the Off position.	Turn the reader on.
The Red cross is flashing or permanently on.	The reader has failed self-test or is damaged.	Disconnect all cables and turn off. Plug in the PSU cable and turn on. Once successfully powered up then connect the USB cable. If this procedure does not clear the error then follow the procedure outlined in "Returning the reader for maintenance".
Green tick flashing	USB cable is not connected	Check USB cable is connected at both ends. Check USB cable is not damaged. Check PC USB port is not damaged or disabled.
The reader is not communicating with host PC system.	The cable is not properly connected or USB drivers are not properly installed.	Verify that the USB cable is connected to the host.

Verify that the USB driver is installed.

Verify that only one reader is connected to the host system and only one instance of the host application is running. |
| The Red cross LED illuminates 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 that are poorly printed. However, some documents are of such poor quality that the reader will not be able to process the OCR data.

Verify the document conforms to ICAO 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).
	The document is not orientated correctly on the scanning window.	For details on document placement, see "Reading Documents" on page 22.
The demo application is not working.	The application may already be running.	Verify that only one copy of the application is running.
	The software is installed incorrectly.	Remove the existing application & re-install software. For more information see the Software Installation section.
	Another application is already running	Check that there are no other running applications or services that have connected to the reader. Close or disable any applications or services that are found and retest using the Gemalto demo application.
	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 unresponsive		Close and restart the application. Disconnect USB and PSU from PC and then reconnect. Disconnect USB and PSU. Close application and then restart PC. Reconnect document reader to PC and then open application. Contact GTS if still unresponsive
USB peripherals attached to the reader do not power on or do not function correctly	You need to use the external power supply when attaching external devices	Verify the AC power source. Verify that the AC cable is connected to the AC power source. Verify that the power cable is connected to the power supply port located on the back panel.

B. Customer Service

If you cannot solve the problem after following the instructions on the section "Troubleshooting", contact Gemalto'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 Gemalto's Global Technical Services at

technical.service@gemalto.com

Returning the Reader for Maintenance

In the event of a suspected problem with Gemalto 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 Gemalto GTS via telephone, 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.**

3. **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 and form. 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 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. Place a copy of the RMA form inside the box

   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 Gemalto

   The CUSTOMER is responsible for insurance coverage on the reader in case of loss or damage during transit to Gemalto. The reader should be returned to the Gemalto 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 (Gemalto)

   Please affix the shipping documents and a copy of the RMA form 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 address the CUSTOMER specifies on the RMA form