



Gemalto Document Reader AT10Ki

User Guide

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Preface

This user guide describes the features and functions of the Gemalto Intelligent Document Reader AT10Ki (PV75-XX-XX-XX).

Revision History

Version	Date	Description
1	August 2018	DRAFT

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 Power Supply Unit (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:

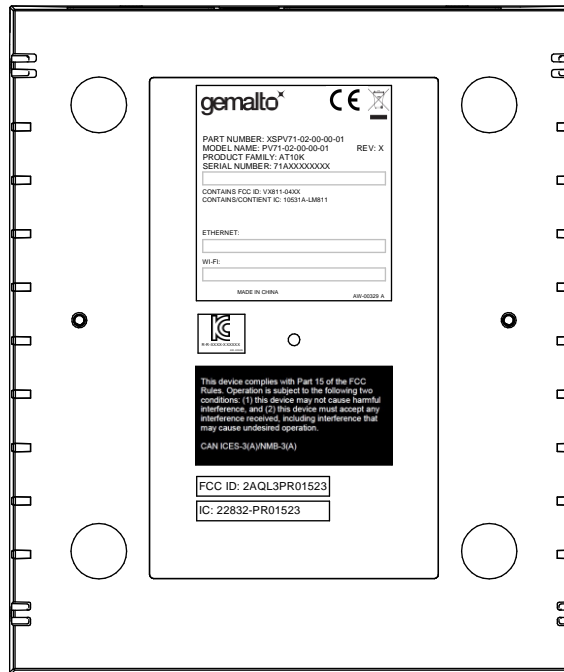
- Scanner: EMC (2014/30/EU), RFID Option Radio Equipment RED (2014/53/EU)
- PSU: EMC (2014/30/EU), LVD (2014/35/EU)

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 Federal Communication Commission (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.

Product Labelling



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: 2AQLPR01523

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

Taiwanese Regulatory Notices

- 第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
- 第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
- Article 12 Any company or users using NCC Type Approved products cannot modify the frequency, increase the power, or change the function from its originally intended use without approval.
- Article 14 The use of low power RF equipment cannot interfere with flight safely or any other legal RF communication channels. If any interference is found the use of the product needs to be stopped immediately until the interference is fixed

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 Intelligent Document Reader AT10Ki. 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.



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



Indicates a hazardous situation which, if not avoided, could result in injury or equipment damage.



Indicates a situation which, if not avoided, could result in equipment damage.

Note:

Provides additional important information.



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.



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

- 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.
- 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.

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1. Introduction

The Gemalto Intelligent Document Reader AT10Ki is the result of over 20 years' experience in designing travel document readers for the most demanding customers and environments. With built-in high-performance processing and networking the AT10Ki inspects, authenticates or captures data from electronic travel and identity documents quickly and reliably in cloud and virtual computing environments.

The Intelligent "I" series readers include an embedded Arm® processor running Linux® meaning that for networked mode all the document processing is carried out on the reader. Ready for the cloud the AT10Ki uses web style encrypted JSON messaging to simplify app development, deployment and maintenance. For the customer this means:

- The AT10Ki can connect to any mobile device, phone or tablet
- The reader can be used in pool mode connecting to multiple devices
- A single computer can connect to multiple readers
- Flexible install options
- Lower development and life time IT costs
- Onboard direct connections to software as a Service (SaaS) back-ends

The AT10Ki provide a complete integrated system including reader, on-board application, OS, device management, network protocols and security. There are flexible installation options using WiFi, Ethernet (with Power Over Ethernet) and USB3 which enable mobile and fixed point workstations.

With its compact size yet high quality optics it can image travel documents using three light sources and has a Radio Frequency IDentification (RFID) interface for reading eDocuments in one action. The AT10Ki can automatically capture the machine readable zone (MRZ) data, images and chip data from a variety of personal identification documents, including ePassports, passports, visa and other travel documents as well as decoding barcodes from documents such as boarding passes.

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.

The design of the AT10Ki is based on detailed and exhaustive analysis of field experience and numerous deployed projects. With a new "landing lights" LED feedback arrangement and document hold down clip it naturally encourages the correct placement and use of the reader, regardless if the user is left or right handed, maximising first time read rate for faster customer processing.

Gemalto has created a new stylish look that will fit into the décor of the most upmarket customer facing service desks.



Gemalto Intelligent Document Reader AT10Ki with and without hood

Supported documents and formats

The Gemalto Intelligent Document Reader AT10Ki 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[™]), 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)

Operational modes

The Intelligent AT10Ki family has 3 modes of operation:

- **Web-UI:** Web pages are displayed by the reader when you log into it from a browser, just like a printer or router interface. Designed for device management, provisioning, configuration and reader testing with simple document reading
- **Web-API:** The normal mode of operation via the network and provides connections to mobile devices, phones, tablets running most operating systems. The Gemalto Messaging SDK is a thin shim used on the local device for Windows, Mac, iOS, Linux, Android. High level data and control methods are provided, similar to Gemalto Document Reader SDK. There is a reader discovery method that presents a list of available devices with localisation parameters
- **Legacy USB:** Compatible with current Gemalto USB connected document readers and the applications written for them. Note that this mode cannot be used at the same time as one of the Web interfaces. Legacy USB mode is enabled by having a USB cable connected

When talking about networked operation it could mean use of either the Web-UI or Web-API interfaces running over WiFi or Ethernet.

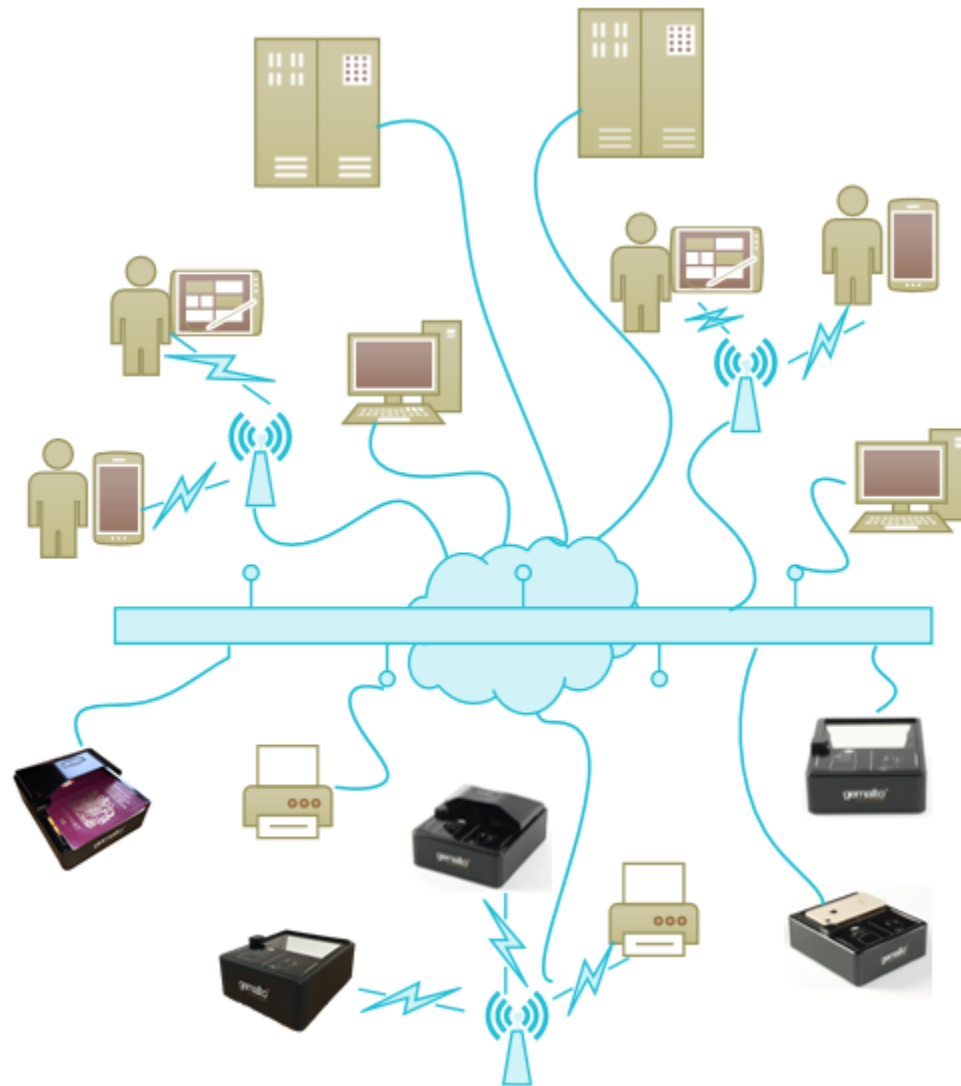
When switching between Legacy USB mode and networked mode and vice-versa it is best practice to reboot the reader.

Connectivity

The following connectivity is available on the Gemalto Intelligent Document Reader AT10Ki:

- USB 3.1 with Type C connector allowing the reader to be fully powered from USB when running in Legacy USB mode. The reader can also be connected to a USB 2.0 port.

- 1000 Mbps Ethernet to IEEE® 802®.3 with Power over Ethernet (POE) which can be used to power the reader when in networked mode
- WiFi IEEE 802.11b/g/n standards up to 150Mbps with WPA/WPA2/WEP
- Bluetooth® v4.0 (classic/Low Energy) for local device management, by default this interface is turned off as a security measure.
- Two USB2.0 hub ports into the upstream USB3 for attaching additional biometric devices like a webcam or fingerprint reader (requires POE, USB3 @ 1.5A or external PSU). These can also be switched to the Arm in networked mode
- Two USB2.0 ports into the onboard Arm processor for attaching additional biometric devices like a webcam or fingerprint reader (requires POE, USB3 @ 1.5A or external PSU)



Typical AT10Ki network map

Imaging features

The Gemalto Intelligent Document Reader AT10Ki family has many 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 at 700 DPI
- 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.

Physical design features

The Gemalto Intelligent Document Reader AT10Ki family has the following physical design features:

- A progress bar with Tick / Cross indicators make reading a document intuitive, helping to direct the user during a read and visually show the result of the read.
- Unique document spine hold down clip, holds down new books and works on multiple, stapled books.
- “No clip” 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 motorised parts, robust construction.
- Supports left or right, single-handed and gloved operation.

Common applications

Typical uses of the Gemalto Intelligent Document Reader AT10Ki include:

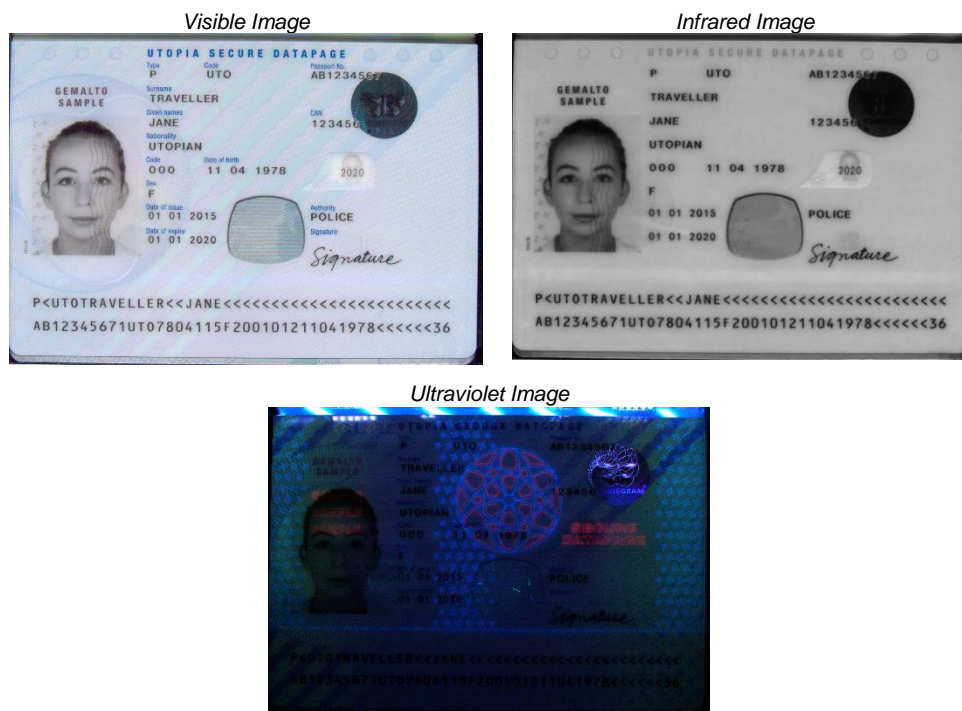
- Border control eDocument data capture
- ePassport and other travel document reading and document verification/authentication
- Airline check-in and bag-drop
- Boarding checks including reading boarding passes including from cellphones and home-print
- Electronic manifests with traveler photo images for API data collection by airlines, cruise lines and ferries
- Hotel check-in and reporting and to meet government 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)
- Scanning full-colour or grey-scale images of travel documents
- Travel document quality assurance during document issuance

Document security features

The Gemalto Intelligent Document Reader AT10Ki 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.



The AT10Ki family can be used with Gemalto IDV document authentication engine and library as well as many other leading authentication providers.

True-colour/Anti-glare Technologies

Anti-glare technology, ambient light compensation and true colour imaging ensure that the Gemalto Intelligent Document Reader AT10Ki 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. Reader components

The Gemalto Intelligent Document Reader AT10Ki is a small desktop device with:

- A document window/platen for placement of documents to be read
- LEDs to indicate document reading status
- A back panel containing communication, USB hub, and power connection ports
- Removable document hood and adjustable clip to allow for scanning of oversized documents
- Optional 5 volt power supply
- Attachment points for mounting the reader to a table or swing arm, etc

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

Document window

The document window is a glass surface measuring 130 x 90 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.



Keep this surface clean to ensure optimum operation of the reader. See “Cleaning the reader” on page 33.

Document hood

The Gemalto Intelligent Document Reader AT10Ki features a semi-enclosed hood that minimizes ambient light to ensure high-quality scans, especially in ultra-violet. 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 hood can be simply lifted off and slots back into place.

The Gemalto AT10Ki can compensate for ambient light in most bright office environments and will work without the hood attached.

Note that the hood can be fixed by using the glass mounting holes contact Gemalto support for more information.



Status Indicator LEDs

The status LEDs are designed to make the reading process more intuitive both for untrained or infrequent users and regular users. 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 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:

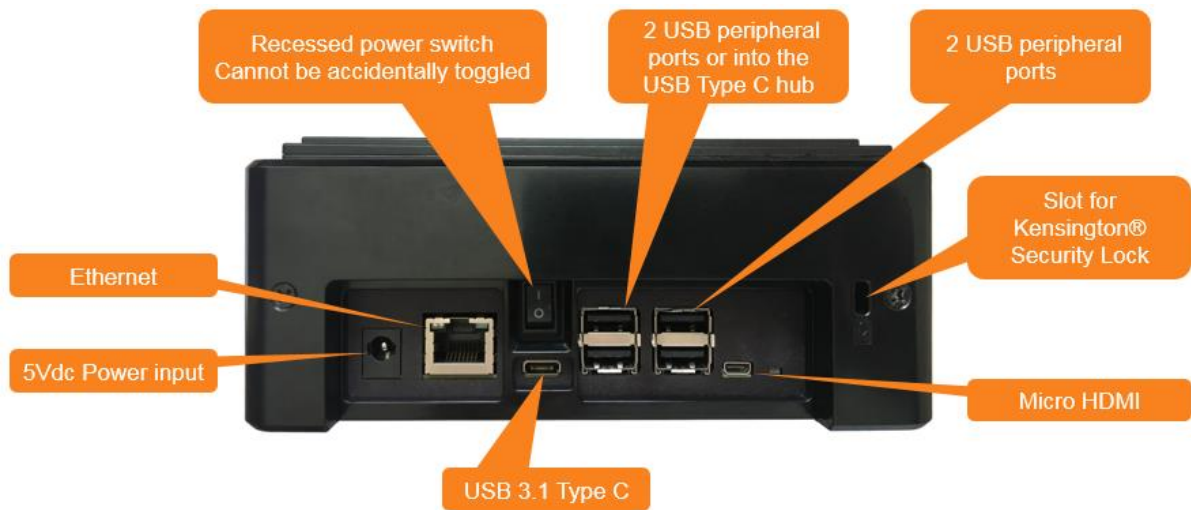
LED Colour	Description
All LEDs off	Hardware failure, return to service centre if fault persists.
Red cross flashing	Self-test failure, error can be determined from flash sequence, return to service centre if fault persists.
Red cross on	Self-test failure, return to service centre if fault persists.
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.

Back panel

The back panel features the USB 3.1 host communication port, Ethernet, 4 USB ports for peripherals, a power supply connector, HDMI port (future enhancement) and a power switch.

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



USB Ports

Communication to and from the host PC in Legacy USB mode is via USB 3.1. The USB host interface is a Type C connector which has the benefit of being able to supply more power and is reversible.

A built-in USB hub and two auxiliary USB 2.0 Type A connectors allow you to connect USB peripherals such as a mouse, keyboard, printer, etc to the upstream USB3 connection. The two USB peripheral connectors are capable of supplying +5V DC (500mA) to the peripherals if an appropriate power source is used, see the Alternative Power Sources section below for details. When in networked mode these USB ports can connect to the onboard Arm processor.

There are 2 additional USB2.0 ports which are connected to the onboard Arm processor for use in networked mode.

Ethernet Port

An RJ45 receptacle is provided for Ethernet connection, for best results use a CAT 6 cable capable of 1000Mbps operation..



HDMI Port

A micro-HDMI port is available for local screen output, this is by request to Gemalto.

Power Supply

A power supply is included with each Gemalto Intelligent Document Reader AT10Ki which is CB scheme Listed LPS and capable of providing +5V DC at 3A.

Gemalto recommends the use of the supplied power supply for best performance and compliance to regulations.

 WARNING
<p>To reduce the risk associated with hazardous voltage which, if not avoided, could result in death or serious injury:</p> <ul style="list-style-type: none"> 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 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
<p>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.</p>

Alternative Power Options

The Gemalto Intelligent Document Reader AT10Ki can be powered from either a USB port or from a Power Over Ethernet network connection. Each of these has different capabilities summed in the table below:

Operational mode	Auxiliary ports powered?	OS	Can power source be used?				
			USB2 500mA	USB3 900mA	USB3 1.5A	POE	PSU
Legacy USB	No	Windows	No	No	Yes	No	Yes
Legacy USB	Yes	Windows	Yes	Yes	Yes	No	Yes
Legacy USB with ARM running	Either	Windows	No	No	Yes	No	Yes
Legacy USB	No	Mac/Linux	No	No	Yes	No	Yes
Legacy USB	Yes	Mac/Linux	No	Yes	Yes	No	Yes
Legacy USB with ARM running	Either	Mac/Linux	No	No	Yes	No	Yes
Ethernet	Either	Any	No	No	No	Yes	Yes
WiFi and Bluetooth	Either	Any	No	No	No	Yes	Yes

When operating on USB 2.0 power (500mA) or USB 3.0 at 900mA, due to the limited power available over the USB interface:

- the reader's speed will be slightly slower than when powered from the external PSU or USB 3
- the back panel USB peripheral ports will not be available
- Linux and macOS operating systems is not supported

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.

3. Installing the Reader (Legacy USB)

This chapter explains how to install the Gemalto Intelligent Document Reader AT10Ki software and connect the reader to the PC using the legacy USB interface.

Before you begin

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

- A PC with an USB 3.1 or 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 and CentOS, 32 bit only. Additionally macOS is supported (contact Gemalto for more details).
- 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 AT10Ki
- Power supply unit (PSU) and AC cable
- Test card
- USB communication cable (Type C, USB3)
- 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.

May 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.



Type C (connects to reader)



Type A (connects to PC)

- Power supply (optional) – You may need to use the optional power supply (PSU) or USB 3, review the Alternative Power Options section for notes on the power requirements of the different operating systems and auxiliary USB ports. 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: Use on the USB cable and optional PSU provided with the reader.



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.



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

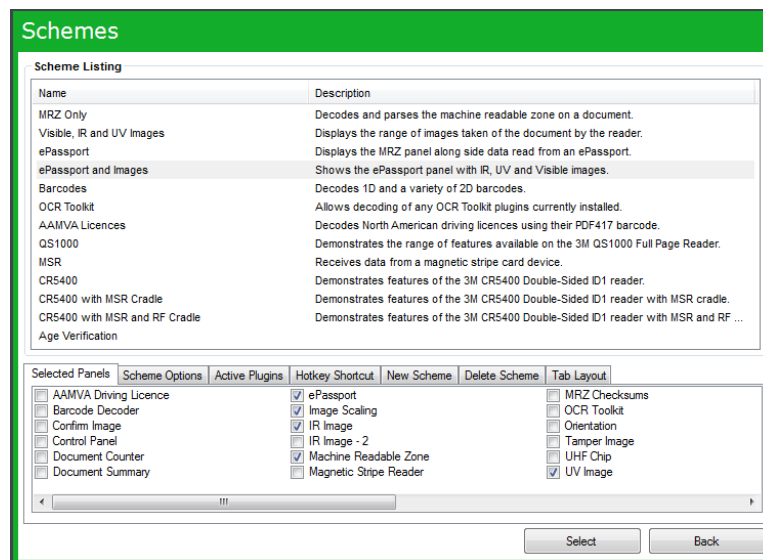
- Do not use the reader with any AC power supply other than the provided Gemalto AC power supply.
1. Connect the USB cable, this is required prior to power on of the reader to enable Legacy USB mode:
 - I. Insert the Type C connector into the USB port located on the back of the reader.
 - II. Insert 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.
 4. A power-on self-test occurs automatically during power up. The first yellow LED will flash 3 times and then the yellow landing lights will increment towards the green tick while the test is being performed. If the reader is installed correctly and is operational, the green tick should illuminate and a beep sound will be heard. If another LED shows then consult page 16 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 **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.



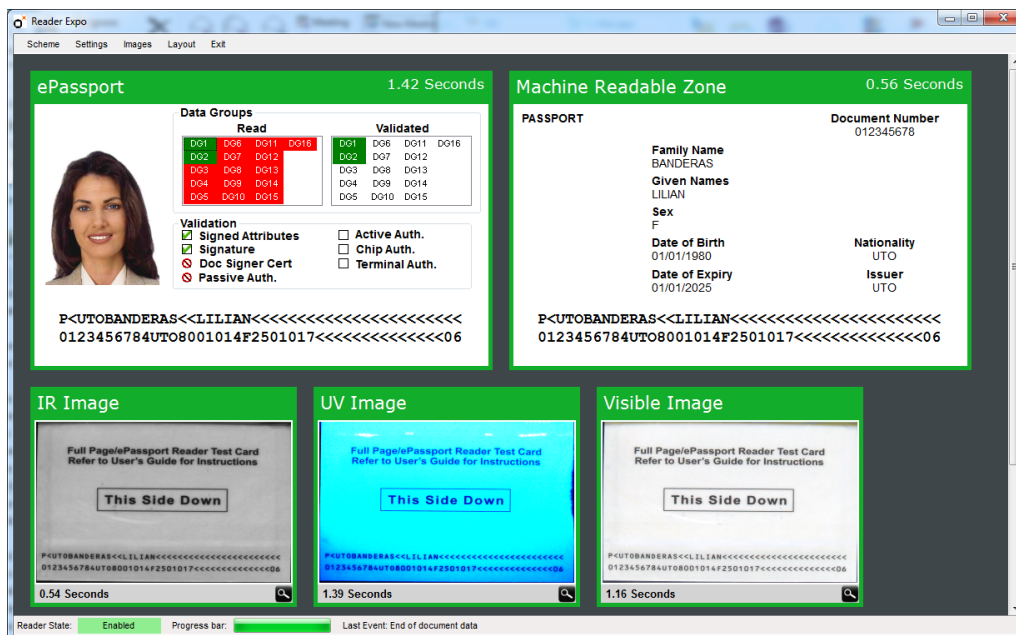
3. Click **Select**.

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 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.

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.



4. Installing the Reader (Networked mode)

This chapter explains how to install the Gemalto Intelligent Document Reader AT10Ki software on a mobile device and connect the reader to a network and establish a connection to it.

Before you begin

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

- An Ethernet connection to a PC or mobile device which supports mDNS device discovery protocol (most do).
- A computer/mobile device connected to the same network. For a list of supported operating systems see the Gemalto iSeries Software Manual
- Administrative rights to install the software on your device.
- 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 AT10Ki
- Power supply unit (PSU) and AC cable
- Test card
- USB communication cable (Type C, USB3) – this is not used in networked mode
- 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 Messaging SDK
- Reader and software documentation
- Required drivers
- Additional SDKs based on the reader model
- Gemalto Document Reader SDK –(Required only for the user manuals)

To install the reader software:

1. Download the latest SDK software from the link. Click on the *Gemalto Messaging 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. Install this package on the device you will use to do the initial set-up of the networked reader.
3. 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:

- Ethernet cable – Connect the reader to the network using an Ethernet cable; Cat 6 is preferred for 1000Mbps operation (not supplied). If using Power Over Ethernet (POE) ensure you have an appropriate hub to supply the power (see specifications at the end of this manual).
- Power supply (optional) – If you do not use POE then you must use the power supply. Review the Alternative Power Options section for notes on the power requirements of the different operating systems and auxiliary USB ports. 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: Use on the optional PSU provided with the reader.



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.



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 Ethernet cable to the reader. Ensure it is connected to an active network port at the other end.
 2. If not using POE, 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.
 4. A power-on self-test occurs automatically during power up and the first yellow LED will flash 3 times and then the yellow landing lights will increment towards the green tick while the test is being performed. The green tick and a beep sound indicates a successful first stage boot.
 5. The second stage of the start-up process then boots the Arm processor. The green tick is constantly illuminated.
 6. The yellow document detect sequence of landing lights then starts when the reader is operational. If another LED shows then consult page 16 on LED status.

Test the reader installation

After installing the reader, you need to set the initial parameters for the reader and perform a quick test to ensure the reader is functioning properly. For full details see the Gemalto iSeries Software Manual.

To check the reader is on the network:

1. Start the Gemalto test application on your computer/mobile device. The initial screen should show that the reader is on the network, for instance:

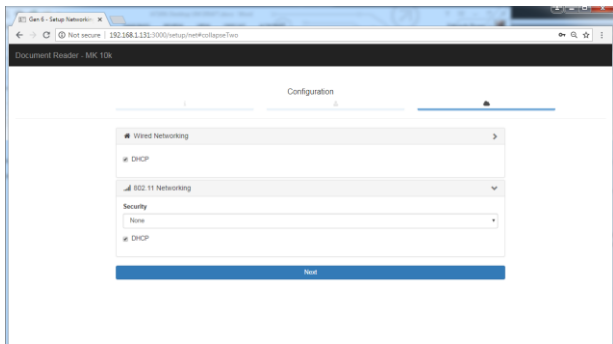
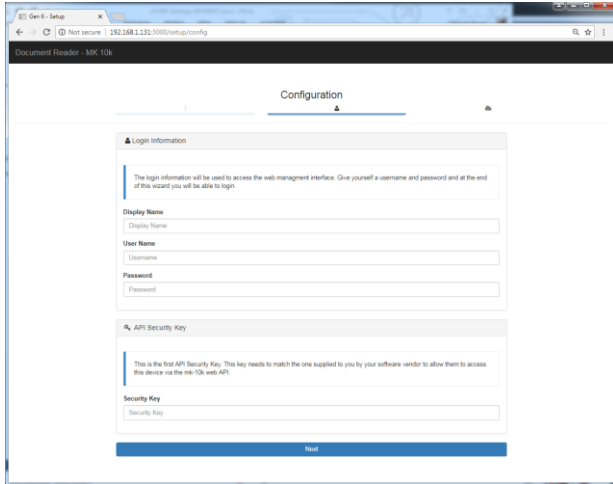
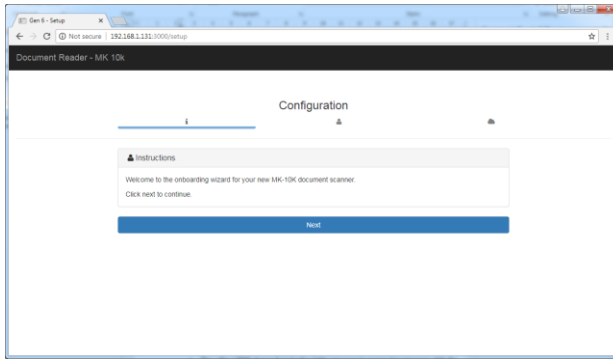


There are many other network tools available especially for Android and iOS and these can be used to either check the mDNS service or carry out a port scan.

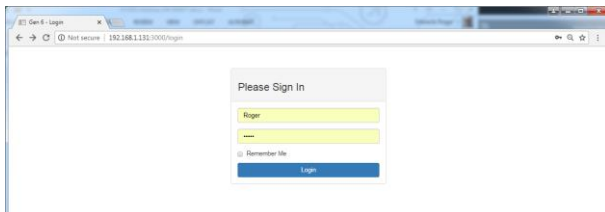
To onboard (provision) the reader:

1. Depending on the Gemalto test application selecting the new AT10Ki will allow you to go to the reader's configuration pages. Alternatively use your web browser to connect using the IP address and port 3000, for instance the URL for the example above is:

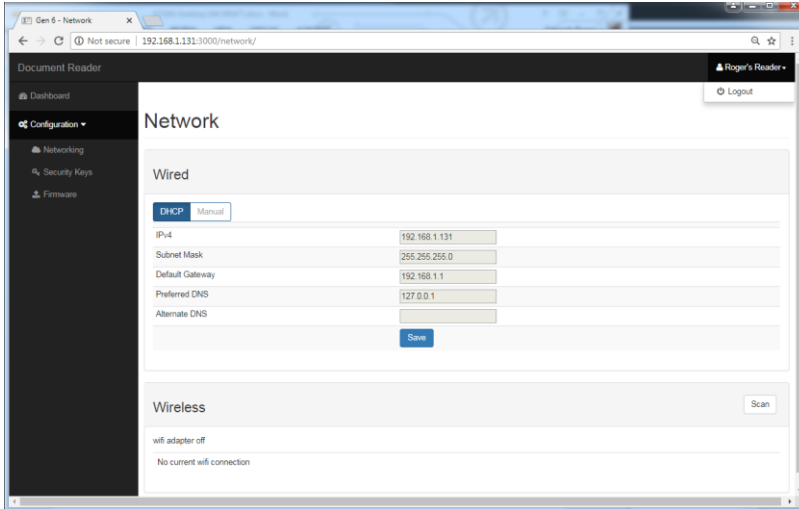
`http://192.168.1.131:3000`
2. You can then go through the onboarding screens for the reader (for details see the Gemalto iSeries Software Manual). Complete the fields and click Next.



3. Once the onboarding process has completed you are presented with the sign in screen. Use the credentials you just set to log into the reader.



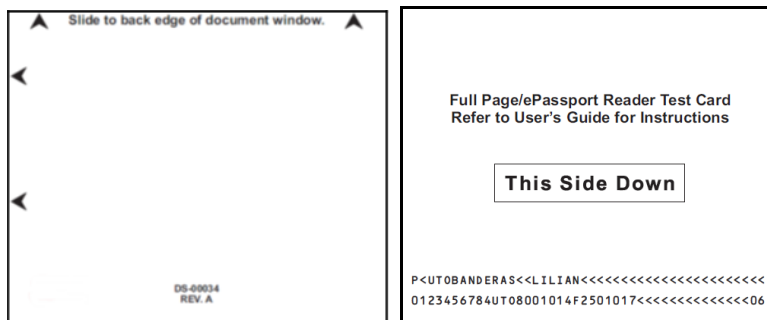
4. Once logged in you get to the management portal which gives you the capability to manage and test the reader.



To test the reader:

You can use one of the Gemalto test programs to check the reading function. Connect to the reader you want to test and then click the document capture icon.

1. **Select** the test card (DS-00031 or DS-00034) supplied with the reader.



2. Place the test card face down on the document window, aligned with the left guide, with the test card instructions facing up.
3. Push **the** card to the back of the document window until it stops.
Note: Do not move the document during the scanning process.
4. **Observe** the 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.

The data from the test card is sent to the test application and the results displayed on the screen.

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 3 to 12 seconds, the yellow progress bar LEDs turning off will show when the document can be removed.

6. Networked mode operation

The Gemalto Intelligent Document Reader AT10Ki has been designed to work in a network and be connected to enterprise cloud applications. Network connection also provides an easy way of connecting to multiple mobile devices such as tablets and phones and can provide a “reader pool” in the same way as can connect to the closest printer.

This section provides some basic details on the various mechanisms that support networked mode. For more details please see the Gemalto iSeries Software Manual.

Provisioning process

The reader needs to be set up for the network it is to be run on and also requires the secret credentials to authenticate it to the customer’s systems. The process by which the reader is set up for the first time is called provisioning or onboarding. It has been designed to be straightforward for customers and system integrators.

- Initial setup is initiated by plugging the reader into Ethernet network
- PC browser uses discovery protocol mDNS (known as Bonjour for iOS devices) on port 5353 to find the reader
- When you first connect to a reader using a web browser it will display a provisioning web page
- The operator then sets the various parameters
- Once provisioned the reader no longer displays the provisioning page by default and requires username/password to log into it using the Web-UI

Typical parameters during the provisioning process are:

- *Network parameters:*
 - DHCP auto or manual
 - Manually set IP address
 - Default gateway
 - Enable wireless adaptor and SSID parameters
- *Security parameters:*
 - Secure key(s) for client authentication
 - Customer’s own username and password
- *Localisation parameters:*
 - Physical Location (R/W)
 - A text description (R/W)
 - "Icon" image (R)
 - Serial Number (R)

Software updates

The reader operating system and document reader SDK can be updated over the network using either a customer hosted or a Gemalto server. The choice will depend on the availability of internet access from the reader and the capabilities of the customer’s servers.

There are two modes of update:

Push

Customer downloads an update package (from the Gemalto update server or Gemalto Customer Portal) and sends it to the device via Web-API or Web-UI.

Pull

The reader connects to and authenticates the update server (whether Gemalto or customer hosted). The reader downloads the update package and runs the update procedure. Updates can be **Scheduled** (automatic) or **Requested** (manual command via Web-UI or Web-API).

The Gemalto AT10Ki reader then downloads the update and checks the digital signature of the release against the Gemalto public certificate stored in the reader. If the update package is valid then the reader will update itself. The reader will finish by rebooting.

The reader holds one software build and factory default. Roll-back is via factory reset and then a push with the required release.

Managing an estate of readers

Gemalto provides tools to help manage a network of readers:

- Device discovery tool to look for devices on the network and report status including software versions, configuration and location
- Various methods of software update deployment
- Diagnostic reporting and error logging
- Use the Web-UI to connect to the reader and read test documents

For more information please refer to the appropriate tool or software manual.

Device security summary

Gemalto takes the security of our customers' data and networks very seriously and has built security into the Gemalto Intelligent Document Reader AT10Ki. This includes:

Data at rest:

- Passport data is never stored on device, it is only in memory during a 'session' opened by the Web-API
- Diagnostic data is limited in scope and can only be sent to pre-designated addresses

Data in flight:

- Data is protected in flight with a symmetric AES-256 cipher. The symmetric key is exchanged by an Elliptic curve, NIST 521, Diffie-Hellman key exchange
- A pre-installed shared secret (API-key) ensures device authenticates with the customer's back-end system
- Secure certificate storage

Secured updates:

- During updates the reader authenticates with the update server
- The update image's signature is validated prior to installation
- All update images are signed by Gemalto
- No admin/root access for customers

Secured boot:

- Each stage of the boot process is validated so only valid software can be executed, trust to rooted to private key stored in hardware

7. Maintenance

The Gemalto Intelligent Document Reader AT10Ki has no user-serviceable parts but its glass surface must be cleaned on a regular basis. For extensive repairs, return the reader to Gemalto service depot. See page 40 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

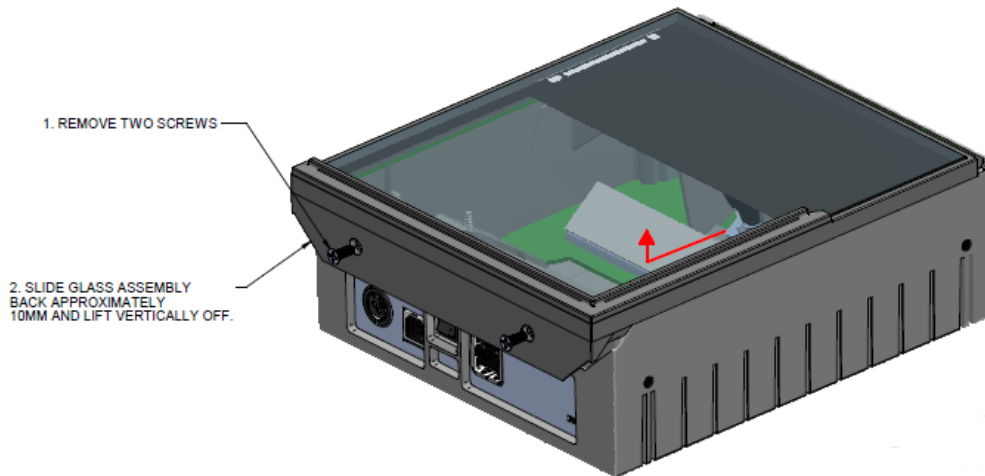
You can replace the glass in the document window if it becomes damaged.

**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.

8. Specifications

Physical Specifications	Dimensions	Length: 18.7 cm (7.4") Width: 16.0 cm (6.3") 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 3.1/2.0 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*	IP5X rating for dust ingress protection in the optical chamber
Communication Interfaces and Protocols	USB Interface	USB 3.1, 5 Gbit/s interface
	Host USB Power	Reader can be powered from a single host USB 3.1 (minimum 1.5A) or USB 2.0 connector (500mA)
	USB connectors	One USB Type C connect (host) Four USB A connectors (peripherals)
	USB cable length	2.00 m (79 inches)
	Aux. USB power	5V DC, 500mA per port (with external power supply or USB 3.0 >1.5A or POE only)
	Ethernet	10/100/1000 Mbps Ethernet to IEEE® 802®.3 using RJ45. Cat 6 cable recommended for 1Gbps operation
	Power Over Ethernet	IEEE 802.3af compliant Powered Device (PD) interface Requires typically 36 – 48V
	WiFi - IEEE 802.11b/g/n	Operating distance of up to 150 meters in free space. 150/120/90/60/54/48/36/30/24/22/18/12/11/6/5.5/2/1 Mbps selectable Data Rate. 64/128-bit WEP , WPA (Wi-Fi Protected Access), WPA2 2.400GHz ~ 2.4835GHz unlicensed ISM Frequency Band. Modulation Methods: IEEE 802.11b : DSSS (Direct Sequence Spread Spectrum). IEEE 802.11g / 802.11n : OFDM (Orthogonal Frequency Division Multiplexing). Support Standards: 802.11b, 802.11g, 802.11n-HT20/40 Frequency Range: 2412-2472MHz for 802.11b/g/n (HT20) 2422-2462MHz for 802.11n (HT40) RF Output Power: 16.28dBm (EIRP)
	Bluetooth	Bluetooth Version: v2.1+EDR/ v3.0/ v3.0+HS/ v4.0 Frequency Range: 2402-2480MHz RF Output Power: 5.77dBm (EIRP)
	HDMI	Micro-HDMI

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

9. 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 or USB 3.1 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 "Error! Reference source not found." on page 24 Error! Bookmark not defined.
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		<p>Close and restart the application.</p> <p>Disconnect USB and PSU from PC and then reconnect.</p> <p>Disconnect USB and PSU. Close application and then restart PC. Reconnect document reader to PC and then open application.</p> <p>Contact GTS if still unresponsive</p>
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	<p>Verify the AC power source.</p> <p>Verify that the AC cable is connected to the AC power source.</p> <p>Verify that the power cable is connected to the power supply port located on the back panel.</p>

10. Customer Service

If you cannot solve the problem after following the instructions in the Troubleshooting section, 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