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Gemalto OEM Document Reader KR9000

User Guide

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By using the Thales Gemalto OEM Document Reader KR9000 product range (the "Product"), you (the "User"), agree to be bound by the following terms and conditions which shall apply in addition to any other terms and conditions included with any order acknowledgement issued by Thales and in addition to any other relevant agreement in effect between the parties.
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Office Locations

The Americas

14 Colonnade Road c/o
20 Colonnade Road
Ottawa, ON
Canada K2E 7M6

Telephone: +1-866-500-2347
technical.service@thalesgroup.com

Europe, Middle East and Africa

6 rue de la Verrerie
CS 20001
92197 Meudon
France

Telephone: +33 1 55 01 50 00

Asia, Pacific and Australia

12 Ayer Rajah Crescent
139941 Singapore
Singapore

Telephone: +65 6317 3333

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Preface

This user guide describes the features and functions of the Thales Gemalto OEM Document Reader KR9000.

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.

Note: Readers may have either a Thales or Gemalto logo however they are the same product manufactured and supported by Thales

Revision History

Version	Date	Description
A	Jan 31, 2013	Release version
B	June 2015	Updated contact info
C	Feb. 2016	EMC compatibility notice; Latching power switch operation
D	Sep. 2017	Gemalto
D1, D2	November 2018	Taiwan regulatory notices
E	May 2020	Thales brand
F	December 2020	Thales rebrand, Korean regulatory notices
G	February 2021	New Taiwan regulatory notice
H	March 2021	Updated Taiwan regulatory notice
J	Sep. 2022	Updated FCC ID and Canadian ID

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 Thales representative or the manufacturer at technical.service@thalesgroup.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)
- Restriction of the use of certain hazardous substances (RoHS2) Directive 2011/65/EU

CE

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 Company. Unauthorized modifications may void the authority granted under Federal Communications Commission 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: 2AQL3PR01813 (Historic IDs: DGFSSDPV40, MESPR01517 and 2AQL3PR01517)

Canada Labelling

This device complies with Industry Canada's licence exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference, and

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

Le présent appareil est conforme aux CNR d'Industrie 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, et

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

Canadian ID: 22832-PR01813 (Historic IDs: 458A-SSDPV40 and 22832-PR01517)

RF Exposure Statement (FCC)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. In order
to avoid the possibility of exceeding the FCC radio frequency exposure limits, this equipment should be installed and operated with minimum distance 20 cm (7.6 inches) between the antenna and your body during normal operation. Users must follow the specific operating instructions for satisfying RF exposure compliance.

RF Exposure Statement (ISED)

This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm (7.6 inches) between the radiator and any part of your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
Pour se conformer aux exigences de conformité ISED RSS-102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

Taiwanese Regulatory Notices

取得審驗證明之低功率射頻器材，非經核准，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。低功率射頻器材之使用不得影響飛航安全及干擾和法通信；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。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材需忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Without permission granted by the NCC, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristics as well as performance to a approved low power radio-frequency devices. The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved. The said legal communications means radio communications is operated in compliance with the Telecommunications Management Act. The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Warning to Users:
This is a Class A information device, which might cause radio frequency interference when used in residential areas. When this happens users might be required to take appropriate actions.

Korean Regulatory Notices

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

Disposal - European Directive 2002/96/EC

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

Do not send equipment back to Thales 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 Thales Gemalto OEM Document Reader KR9000. 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.

Foreign language translations of these safety instructions can be found on our Customer Portal and in the SDK.

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 Thales 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

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 microfibre 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 Thales Gemalto OEM Document Reader KR9000 is used to inspect and image travel documents, including electronic travel documents and 1D and 2D barcodes used by the airline industry on 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 KR9000 with open document scanning

Gemalto OEM Document Reader KR9000 with optional spring-loaded document clip

Supported Documents and Formats

The Gemalto OEM Document Reader KR9000 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)
- ISO7816 contact smartcard reading (optional)
- Chinese NID card RFID reading (optional)

Imaging Features

The Gemalto OEM Document Reader KR9000 has the following imaging features:

- True-colour and anti-glare technologies deliver accurate, true-colour images while minimizing interference from document laminate reflections, optically-variable security features or ambient light.
- Multiple light sources for image capture and authentication – visible (RGB), infra-red (IR), ultra-violet (UV-A).
- Captures full-colour or grey-scale images
- 400 DPI camera as standard with 720 DPI option
- 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.
- Thales Gemalto Confirm Laminate imaging with tamper detection

Common Applications

Typical uses of the Gemalto OEM Document Reader KR9000 include:

- Airline self-service check-in
- ePassport and other travel document reading and authentication
- Scanning full-colour or grey-scale images of travel documents
- Electronic manifests with traveler photo images
- Hotel check-in and reporting
- Document authentication
- ID checks
- Travel document quality assurance

Security Features

The Gemalto OEM Document Reader KR9000 can help authentication software detect forged or counterfeit documents.

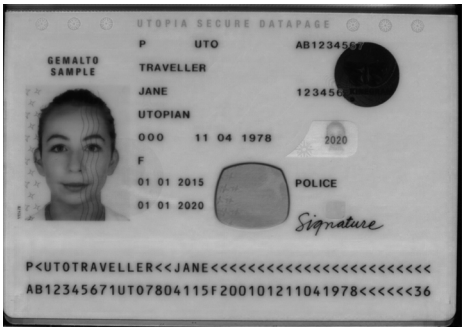
Reading the UV features printed in fluorescent inks on a document provides software with colour images of covert document security features.

Optional Thales Gemalto Confirm Laminate imaging allows software to quickly verify the authenticity of the document. It can also indicate if documents have been tampered by revealing marks or other damage.

The following images show the different light sources supported by the Gemalto OEM Document Reader KR9000.

Visible Image

Infrared Image



Ultraviolet Image

Gemalto Confirm Laminate Image

True-colour/Anti-glare Technologies

Anti-glare technology, ambient light compensation and true colour imaging ensure that the Gemalto OEM Document Reader KR9000 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. No recalibration of the reader is required during operational life.

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:

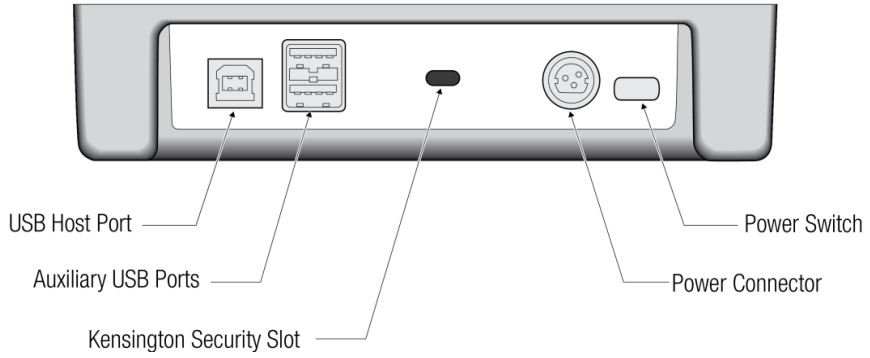
- A document window/tray for placement of documents to be read
- LEDs to indicate document reading status
- A back panel containing communication, USB hub, and power connection ports
- Attachment points for mounting the reader to a kiosk chassis

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.

Back Panel

The back panel features the USB host communication port, 2 USB ports for peripherals, a Kensington® Security Slot, 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
- The reader will not operate under Linux or macOS

A power supply is included with each Gemalto OEM Document Reader KR9000. Thales recommends the use of the supplied power supply for best performance.

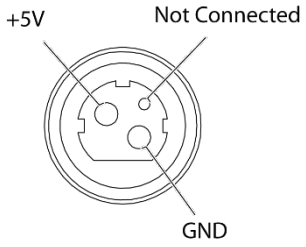
Power Switch

The power switch is a latching push-on, push-off type. Pushing the power switch to the On position allows the reader power to be locked On for Kiosk applications.

Note: Older reader models use a non-latching power switch. In these models the power switch is disabled and the reader power is continuously On.

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:



Power Supply Connector

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 Thales 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.

Status Indicator LEDs

The status LEDs are intended to assist a technician to install and debug the reader, and indicate the reader status and the result of scanning a document.

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

3. Kiosk Enclosure Design

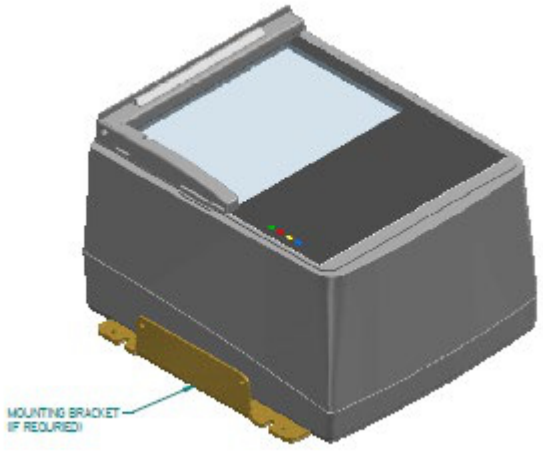
To assist in the mechanical design, 3D CAD models of the reader are available in all popular formats. Contact your sales representative or Thales Global Technical Services for details.

Note: For detailed information about reader dimensions, clearances, mounting hardware, document illumination areas, and RFID performance, please see the KR9000 Integration drawing DT-01906.

NOTICE **Please consult Thales to ensure that your kiosk design is optimal.**

Mounting

The Thales Gemalto OEM Document Reader KR9000 can be mounted directly to a kiosk or eGate/autogate via two M3 machine screws on the button face. Alternatively, the reader may be mounted to a bracket (not supplied by Thales) to adapt to the specific mounting geometry available.



Mounting Bracket Example

Fascia Design

The Gemalto OEM Document Reader KR9000 can be mounted such that its glass surface is flush with the kiosk or eGate surface. A 1.2 mm raised lip around the perimeter of the top shell allows for a custom fascia (not supplied by Thales).

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 on each side of the reader and 100 mm to the rear of the reader, must be ensured. The reader may be mounted such that its glass surface is raised approximately 12 mm above the surrounding metal provided that the 100 mm clearance to the rear is also observed.

Hood/Cover Requirements

The Gemalto OEM Document Reader KR9000 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 KR9000 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.

An optional hood is available for the reader.

Note: Please consult the KR9000 Integration drawing DT-01906 for detailed information about document illustration areas.

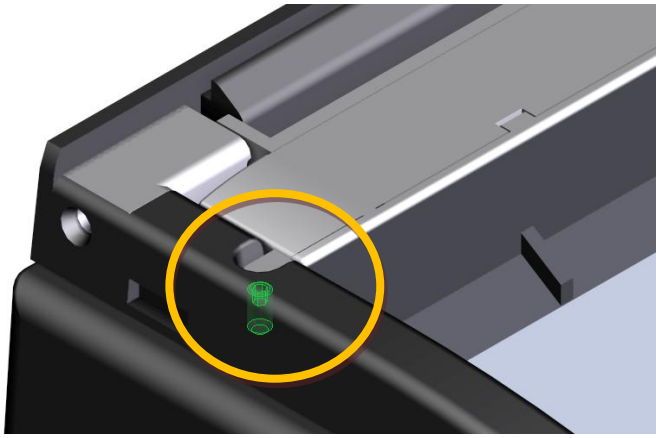
Document Clip

The Gemalto OEM Document Reader KR9000 has an optional adjustable clip that helps to hold documents flat to the surface of the glass.

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

To adjust the document clip height:

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



3. Release the document clip.

Glass Replacement

The Gemalto OEM Document Reader KR9000 glass can be replaced without removing the reader from the kiosk as long as sufficient clearance is available to access the glass retaining clip screws and remove the glass retaining clip.

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

To replace the document window glass:

1. Remove document hood if it is installed.
2. If an optional module is attached to the back of the reader:
   I. Remove the two screws securing the module.
   II. Remove the centre screw securing the document guide and clip assembly.

   If there is no optional module, remove the three retaining screws located on the back of the panel.
3. Slide off the document guide and document clip assembly.
4. Gently slide the glass to the back of the reader while being careful not to damage or remove the rubber gasket seal.
5. Before inserting the replacement glass the gasket should be inspected and wiped with a damp dust-free cloth. Special care is needed to NOT damage gasket. If the gasket is damaged the IP rating will be compromised.
6. Insert the replacement glass. Ensure that the bevelled edge on the glass is inserted toward the front of the reader.

   NOTE: It is important that the internal components be free from dust or other contamination. If any dust is present, use compressed air to remove it from the optical chamber.
7. Re-attach the document guide. Ensure that the guide hooks into the slot in the enclosure top.

Re-attach the document hood if required.

Glass Cleaning

The document glass should be cleaned regularly by maintenance personnel to ensure optimal performance.

Use a safe cloth that will not damage glass, such as the provided microfibre cleaning cloth. To reorder cleaning cloths, contact Global Technical Services (GTS) See page 29 for more information.

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

To clean the reader:

1. Clean the document window with a clean microfibre cloth. For stubborn dirt, use a mild glass cleaner or a lightly dampened cloth (water).
2. Verify that there are no streaks or smudge spots remaining on the document window.
3. Clean the body of the reader with a lightly dampened cloth (water).

Powering the Reader On/Off

The power switch is a latching push-on, push-off type. Pushing the power switch In turns On the reader power. The power switch will remain in this position, allowing the reader power to be locked On for Kiosk applications. Pushing the power switch a second time will return it to the Out position and turn Off the reader power.

Note: Older reader models use a non-latching power switch. In these models the power switch is disabled and the reader power is continuously On.

4. Installing the Reader

This chapter explains how to install the Gemalto OEM Document Reader KR9000 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 or USB 3.1 port (the reader will not work if connected to a USB 1.1 port)
- A PC running 32 or 64 bit versions of Windows® 7, Windows® 8.1 or Windows® 10, Linux® LTS builds for Ubuntu and CentOS. Additionally macOS is supported (contact Thales 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 KR9000
- Power supply converter and AC cable
- Test card
- USB communication cable
- Microfibre cleaning cloth
- Software download instructions

To unpack the reader:

1. Remove the contents from the box and separate the components from the packing material.
2. Verify that all the parts described have been received. If any parts are missing, contact Thales Global Technical Services (GTS).
3. Keep and store the original packaging in the event that the reader requires shipment back to Thales 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.

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 software and SDK
- Reader and software documentation
- Required drivers
- Additional SDKs based on the reader model

To install the reader software:

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

Type B (connects to reader)

Type A (connects to PC)

- Power supply (optional) – **You need to use the optional PSU if you want to use the reader as a powered USB2.0 hub.** 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. The connector shell will slide backward slightly, allowing the connector to disengage 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 Thales AC power supply.

1. Connect the USB cable:
   III. Insert the Type B connector into the USB port located on the back of the reader.
   IV. 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:
   V. 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.
   VI. Connect the AC cable to a functioning power outlet.

Power on the reader

To power on the reader press the power switch located on the back of the reader.

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

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

The lights may also indicate the following common communication errors:

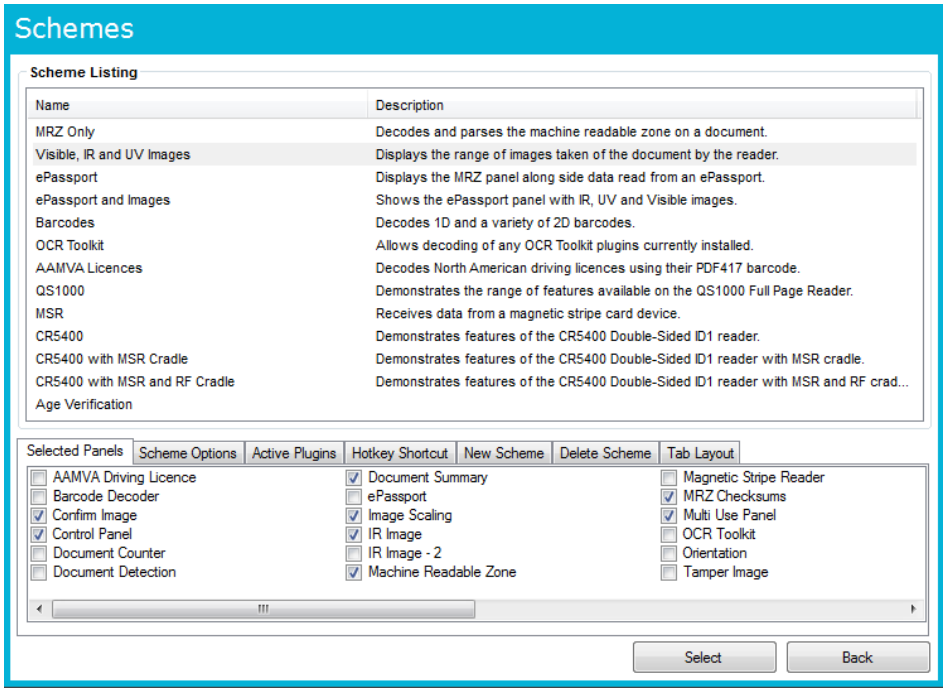
- The blue Ready light flashes rapidly if no USB connection is detected.
- The blue Ready and red Error lights flash rapidly if a USB 1.1 connection is detected. The reader will not transfer document images over a USB 1.1 connection.

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.

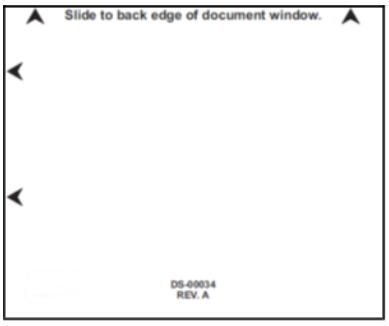
To test the reader:

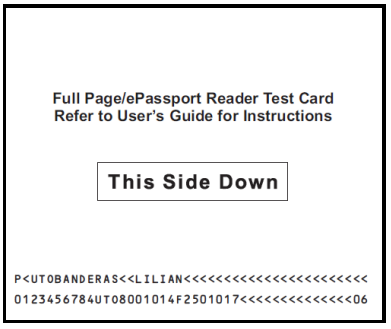
1. Start the application **Reader Expo** from the shortcut created during software installation.
2. Select a scheme that matches your reader. If you are unsure, select the "**ePassport and Images**" scheme.



3. Click Select.
4. Verify that the Ready light (blue) is on and the Reader State in the lower left is “Enabled”.

   The reader is ready to accept documents.
5. Select the test card (DS-00043 or DS-00034) supplied with the reader.





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

   Note: Do not move the document during the scanning process.
8. Observe the lights during the scanning procedure.

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

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


Reader Expo
Scheme
Settings
Images
Layout
Exit
ePassport
3.69 Seconds
SAC Active
Data Groups
Read
Validated
DG1 DG6 DG11 DG16
DG2 DG7 DG12
DG3 DG8 DG13
DG4 DG9 DG14
DG5 DG10 DG15
Validation
Signed Attributes
Signature
Doc Signer Cert
Mrz Comparison
Face Comparison
Active Auth.
Chip Auth.
Terminal Auth.
Passive Auth.
P<UTOTRAVELLER<<JANE<<<<<<<<<<<<<<<<<<<<<<<<
AB12345671UTO7804115F2001012110419781<<<<<<36
Machine Readable Zone
1.04 Seconds
PASSPORT
Document Number
AB1234567
Family Name
TRAVELLER
Given Names
JANE
Optional Data 1
11041978
Sex
F
Date of Birth
11/04/1978
Nationality
UTO
Date of Expiry
01/01/2020
Issuer
UTO
P<UTOTRAVELLER<<JANE<<<<<<<<<<<<<<<<<<<<<<<<
AB12345671UTO7804115F2001012110419781<<<<<<36
IR Image
1.01 Seconds
UV Image
2.16 Seconds
Visible Image
1.83 Seconds
Reader State:
Enabled
Progress bar:
Last Event: Document removed

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.
   - For boarding passes, make sure its barcode is oriented towards the reader.
2. Place the document on the glass document window.
3. Push the document until the leading edge is all the way to the back (and underneath the document clip, if installed). 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 during reading.

   If the kiosk has a clip and the document is too thick to slide under (for example, a boarding pass on a cellphone), slide it to the back until it touches the edge of the clip. The reader will still detect the document.
4. Observe the indicator lights during the scanning procedure:
   - The Ready light (blue) turns off and the Busy light (yellow) turns on while the reader scans and processes the data.
   - The OK light (green) turns on, indicating a successful read.
   - The Ready light (blue) turns on, indicating that the reader is ready to scan another document.
5. Watch the kiosk screen to ensure the document passes inspection.
6. Remove the document.

6. Specifications

Physical Specifications	Dimensions	Length 190 mm (7.48”) Width 162 mm (6.38”) Height 122.9 mm (4.84") (including document clip)
	Imaging Window	125 x 88 mm (4.92 x 3.47”) 4.0 mm (0.157") tempered glass
	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	3-pin 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	IP50 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
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/EC Restriction of Hazardous Substances (RoHS2) Directive

7. Troubleshooting

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

Symptom	Possible Causes	Recommended Actions
The LEDs do not come on during power up.	There is no power to the reader.	Momentarily depress the power switch Verify the reader is connected to a USB 2.0 or 3.1 host port and/or external power supply.
	The unit is damaged.	Follow the procedure outlined in "Returning the reader for maintenance" on page 30.
The Ready LED is continuously blinking.	The USB cable is not connected.	Verify that the cable is installed.
	The system has no USB 2.0 capability.	Verify that your PC is USB 2.0 or USB 3.1 compliant.
The Ready and Error LEDs are continuously blinking.	The system has only USB 1.1 capability.	Install the reader on a PC that supports USB 2.0 or USB 3.1.
The reader is not communicating with PC	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 Error 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. Install document reader hood (see Reader Components section)
	The unit is not configured to read the document being scanned.	Verify the reader configuration with technical staff. Contact Global Technical Services (GTS) at Thales.

	The document is not orientated correctly on the scanning window.	For details on document placement, see “Reading standard documents” on page 25.
The demo application is not working.	The application may already be running.	Verify that only one copy of the application is running.
	Software is installed incorrectly	Remove the existing application & re-install software. For more information see the Software Installation section.
	Another application is running	Verify that no other application that accesses the document reader is running.
	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.

8. Customer Service

If you cannot solve the problem after following the instructions in the Troubleshooting section, contact Thales' 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 Global Technical Services at

technical.service@thalesgroup.com

Office locations and phone numbers are on page 2 of this document.

Returning the Reader for Maintenance

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

To return a reader for maintenance:

7. **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
8. **Initiate Call** – The system manager should contact Thales 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.**
9. **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.
10. **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.
11. **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 Thales

    The CUSTOMER is responsible for insurance coverage on the reader in case of loss or damage during transit to Thales. The reader should be returned to the Thales designated service depot.
12. **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 (Thales)

    Please affix the shipping documents and a copy of the RMA form to the outside of the container.
13. **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