# Contactless readers chipsets

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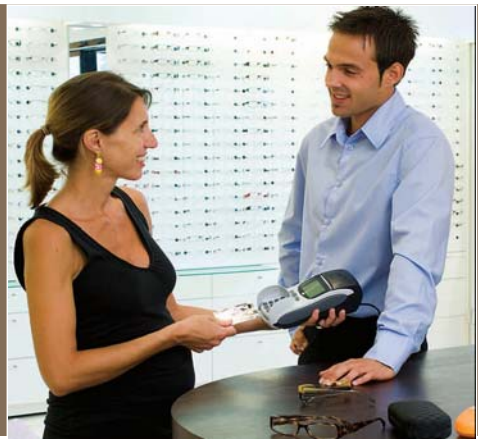


gemalto
security to be free

# Contactless readers chipsets

## Convenience, interoperability, compliance to market standards

### > A complete range of products for the growing contactless markets

Thanks to its reliability and friendliness, the contactless technology is adopted by a growing number of markets. Gemalto, a leader in Digital Security, has been developing expertise in contactless cards and readers for more than 10 years.

Its contactless interface range includes:

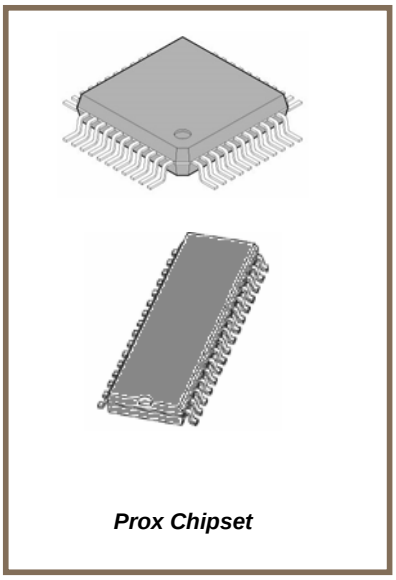
- OEM couplers and antennas: Prox-C series
- Packaged readers: Prox-P series
- Prox Chipsets
- Prox Development Kits.

**Prox Chipset** includes two integrated circuits:

- The radio frequency (RF) chip handles the signal modulation, the lowest layers of ISO 14443 standard and the mifare® security.
- The digital chip embeds the Gemalto Prox firmware in Flash memory. This firmware takes in charge the communication layers with the smart card and the host processor. It can be downloaded locally and remotely.

With Prox Chipset, contactless technology is now accessible to non-RF specialists.

The Gemalto Prox technology reduces the R&D costs and risks, and, therefore, guarantees the best time-to-market.



***Prox Chipset***

### > Convenience

The application software is dramatically simplified by using its high level command set, API library and PC/SC driver.
Automatic operating modes such as the PayPass level 1 algorithm or the mifare® Application Directory (MAD) are embedded and provide the highest possible level of performance.

### > Cards – readers interoperability

Gemalto has been participating to the e-passports interoperability test sessions: Its Prox technology has demonstrated its total card-reader interoperability.

This is the result of the unique addition of skills coming from several Gemalto laboratories.

### > Market standards

Gemalto is actively participating to all the international standards working groups.

Therefore its contactless readers comply with all the major contactless market specifications such as:

- **Proximity payment:** PayPass L1
- **Identity:** ICAO MRTD
- **Access Control:** FIPS 201 / PIV
- **Mass Transit:** mifare® and ITSO.

The Gemalto Prox technology is fully compliant with the **ISO 14443 type A and B** contactless standard.
Consequently it also accesses any **NFC** device operating as a smart card as described in the ISO 21481 standard.

Prox readers access the **mifare®** family cards such as the Ultralight, Standard 1 K / 4 K, SmartMX and DESFire cards.

### > Technical services and support

Gemalto commits on the success of the development projects based on Prox Chipsets.
Depending on the experience of its customers, Gemalto proposes different levels of technical assistance:

- Training on the Prox technology and the development tools
- Technical support about the design of the reader and its antenna
- Test and certification of the complete device.

# Specifications

## > Contactless card interface

- Operating frequency: 13.56 MHz
- Full ISO 14443-1 to –4 compliant, T=CL protocol
- Baud rate: 106 Kbps to 848 Kbps
- Reading distance: up to 10 cm
- Read / write the following cards:
  - ISO 14443 type A and B
  - mifare® range
  - SR176, SRIX512 and SRIX4K chip based cards

## > Main functions

- High level command set
- Firmware download in Flash memory
- mifare® Application Directory (MAD)
- Card insertion / removal detection
- E-purse command set
- Low power management
- PayPass level 1 operating mode
- Self test

## > Interface with the host

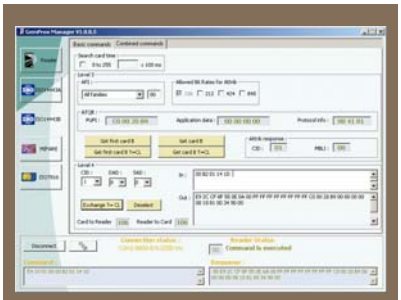
- Type of interface: Serial UART
- Protocol: Gemplus Block Protocol (GBP)
- Baud rate: 1.2 Kbps to 614 Kbps

## > Chipset power supply

- Voltage: +5 VDC +/- 10 %
- Current: < 200 mA in operation

## > Inputs - outputs

- 3 LED indicators
- Beeper
- Open case detection



*Prox Manager tool*

*Prox Development Kit*

**With the Gemalto Prox product range , the contactless technology has reached the same level of accessibility as the contact one, and brings a great level of convenience**

## > Environment

- Operating temperature: -25 °C to +85 °C (-13 °F to +185 °F)
- Storage temperature range: -40 °C to +150 °C (-40 °F to +302 °F)
- RoHS compliant

## > SAM interface

- Number of SAM supported: 4
- ISO 7816, T=0, T=1 protocols
- Power supply: +5 VDC +/- 10 %
- Baud rate: 9.6 Kbps to 115 Kbps

## > Prox Development Kit content

- Prox-P2 reader with USB adaptor and universal power supply
- Set of 15 mifare® and ISO14443 A / B smart cards
- PC/SC v2.0 PnP driver for Windows 2000 / XP
- C language source code API
- Firmware download tools
- Demonstration software
- Powerful test and debugs tools
- Technical documentation, Application Notes

## > Package and packing

- Digital chip: VQFP44, trays of 160 units
- RF chip: SO32, sticks of 24 units

## > Ordering reference

- Ordering name: Prox-Chipset R7
- Reference to order: HWP114473