

## K632

OEM CONTACTLESS READER/WRITER MODULE



K632 is a reader/writer module, compliant with RFID tags and contactless smartcards in the 13.56MHz range (ISO 14443, 15693 and 18000-3). Its small size and single 5V power supply make K632 the perfect RFID front-end for industrials or embedded systems.

### KEY FEATURES

K632 is dedicated to integrators who need to process either **ISO 14443-A/B** smart cards (such as MIFARE, DesFire, Calypso and others), **ISO 15693** tags or RFID labels (ICODE, TAGIT, and others), or **NFC objects**.

### RFID MADE EASY

K632's RF stage is designed to **drive directly unbalanced antennas** (*direct connection for very short distances or through a 50Ω coaxial line*). No other external RF component is required.

Any microcontroller or host computer may drive K632 through a single communication port (*baudrate 38400 or 115200bps*). Thanks to the **free SDK**, with its comprehensive and well-documented API, developers design their contactless/RFID-aware applications in no time.

K632 also features 2 LED outputs and a **USER** configurable I/O line. When needed, a few other pins give advanced control on the device (*on-the-field firmware upgrade, hard reset, hard power down*).

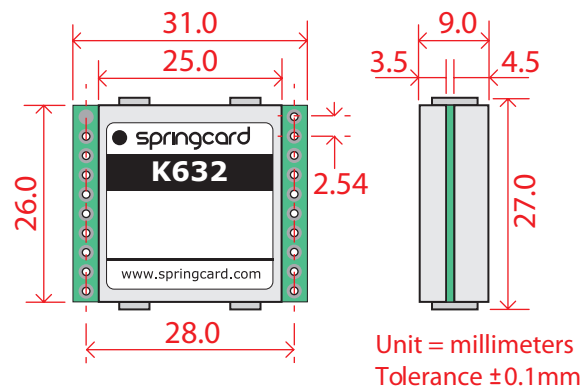
Not drilled	1	20	VCC
SIGNAL	2	19	GND
VCC	3	18	LED Green
GND	4	17	LED Red
RFU	5	16	/SUSPEND
GND	6	15	/RESET
MFOUT	7	14	USER
MFIN	8	13	RFU
RFU	9	12	TX (to host)
/FLASH	10	11	RX (from host)

### A FEW TYPICAL APPLICATIONS

- Ticketing, transportation, road toll pricing
- RFID tracking, loyalty
- e-money/e-purse, corporate ID, citizen card
- physical access control
- and more

### SPRINGCARD & PRO ACTIVE

Established in 2000, **Pro Active** is an innovative provider of smartcard-related solutions, and one of the leaders in the contactless-reader market. Its contact and contactless products are designed and manufactured in France, and distributed worldwide, under the **SpringCard** brand.



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## TECHNICAL SPECIFICATIONS

Contactless smartcard interface	
Standards	ISO/IEC 14 443 A and B, T=CL ISO/IEC 15 693
RFID carrier	13.56 MHz
Operating distance	typical 5 cm - up to 10cm vary with antenna, environment and card
Card baud rate	106, 212, 424 or 848 kbps (ISO 14443) 26 kbps (ISO 15693)
Supported cards (partial list) : <ul style="list-style-type: none"> <li>▪ NXP (Philips) ICODE1, ICODE-SLI, etc</li> <li>▪ Texas Instrument TagIT</li> <li>▪ NXP (Philips) MIFARE Classic &amp; UltraLight, DESFIRE, SmartMX, ProX</li> <li>▪ Infineon SLE66 family</li> <li>▪ ST MicroElectronics SR, SRI, SRIX families</li> <li>▪ HID iClass, Inside PicoTag</li> <li>▪ ASK CTS256/CTS512</li> <li>▪ Calypso (CD97, CD21, GTML, etc)</li> </ul> And virtually any ISO/IEC 14443 A or B compliant smartcard, or ISO/IEC 15693 compliant RFID label	

I/Os and host interface	
I/Os	2 LEDs outputs (active low) 1 USER input/output
Serial interface	8 data bits, 1 stop, no flow control 9600, 38400 or 115200bps
Control lines	Reset Firmware upgrade (FLASH) Hard power-down (SUSPEND)
I/Os, serial interface and control lines are 0/5V, 0/3V tolerant (TTL or CMOS)	

Power	
Vcc	5.0V DC (± 0.2V)
Consumption	RF On : 150mA typ. (depending of antenna) RF Off : 30mA Hard power-down : 6mA

**NB: the K632 needs an external antenna to operate.**

The antenna has to be designed carefully, depending on your own specifications (size constraints, expected operating distance) but with limited flexibility due to the requirements of the ISO standards and the EMC regulations.

SpringCard has a strong experience in antenna design. Don't hesitate to contact us for consultancy.

We also offer ready-to-use OEM couplers, featuring K632 mounted on an antenna. Visit our website for detailed information at [www.springcard.com](http://www.springcard.com).

Environment and safety	
Operating temperature	-20 → +70°C
Storage temperature	-40 → +85°C
MTBF	500 000 hours
CE mark	EN50082 / EN55022 class B <sup>1</sup>
FCC	Part 15
Other standards	RoHS

<sup>1</sup> Safety: EN60950: 2001 ; EN 50364 : 2001, EMC:EN 301 489-03 v1.4.1 ; EN 301 489-01 v1.6.1

Hardware	
Dimensions (LxWxH)	26 x 31 x 09 mm
Weight	≈ 14g

### ORDER CODE

PART #	Description
K632-4R4	ISO 14443-A/B & 15693 OEM module

This device is a contactless coupler; it uses inductive coupling (magnetic field) to power the cards and to communicate with them. Precaution must be taken to keep the antenna far from any source of perturbation (e.g. other readers, computers, etc). Installing the antenna near a metal surface (aluminium or steel plate, etc) means shorter operating distance and increased power consumption. SpringCard has a long experience in antenna integration. Do not hesitate to contact us if you need any assistance.

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