

## K663 SERIES

NFC AND RFID READERS MODULES



### CONTACTLESS & RFID

The **K663** supports any T=CL contactless smartcard (ISO 14443), including Calypso transport cards and all families of Mifare cards.

It is able to read/write any NFC Forum Tag as well as virtually any RFID chip in the ISO 15693 or ISO 18000-3 mode 1 standards (ICODE-SLI, TagIt, my-d...).

### INNOVATING NFC FEATURES

Its NFC peer-to-peer capability (NFCIP1 - ISO 18092) is the basis of innovative new applications using this exciting new technology.

### MADE FOR OEM

This is an OEM products family, sold as electronic parts, without housing. There is a ready-to-use product with its own antenna (K663-232 or K663-TTL). To address specific requirements, select the core module (K663A) and add a custom antenna.

SpringCard also designs ready-to-use products based on the K663 core. For any information, please contact us. **K663** 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*).

### A FEW TYPICAL APPLICATIONS

The **K663** has an improved operating range and a fastest communication speed.

- Physical access control, corporate ID, citizen card,
- RFID tracking, loyalty,
- Transport terminals,
- Vending machines, point-of-sales PC,
- Card printers,
- And more...

### ABOUT SPRINGCARD

SpringCard products are designed and manufactured in France, and distributed worldwide.

With 12 years of expertise in smartcards, contactless, RFID and NFC, SpringCard is the ideal partner to make your project a success.



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## TECHNICAL SPECIFICATIONS

Contactless / NFC interface	
Standards	ISO/IEC 14443 A and B ISO/IEC 18092 Initiator (passive mode) T=CL and NFC-DEP protocols on board ISO/IEC 15693
RFID carrier	13.56 MHz
Operating distance	Typical 5 cm - up to 10cm Vary with antenna, environment and card
Card baud rate	26, 106, 212, 424 or 848 kbps
NFC Forum Tag read/write	<ul style="list-style-type: none"> <li>▪ Type 1 : Innovision Jewel/Topaz</li> <li>▪ Type 2 : NXP Mifare UltraLight, NTAG 203...</li> <li>▪ Type 3 : Sony Felica Lite</li> <li>▪ Type 4 : any T=CL smartcard</li> </ul>
Supported contactless smartcards (partial list)	<ul style="list-style-type: none"> <li>▪ NXP Mifare Classic, Mifare Plus, Desfire, SmartMX...</li> <li>▪ Calypso (including Innovatron radio protocol)</li> <li>▪ Infineon SLE66, ST Micro Electronics ST19</li> <li>▪ Atmel AT88 and CryptoRF</li> <li>▪ ST Micro Electronics SR, SRI, SRIx</li> <li>▪ Any NFC object or mobile phone running in card emulation mode</li> </ul>
Supported RFID tags and labels (partial list)	<ul style="list-style-type: none"> <li>▪ NXP ICODE-SLI,</li> <li>▪ Texas Instrument TagIT</li> <li>▪ ST Micro Electronics LRI and MLR</li> </ul>

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 38400 or 115200bps
Control lines	Reset (/RESET) Firmware upgrade (/FLASH) Hard power-down (/SUSPEND)

I/Os, serial interface and control lines are 0/5V, 0/3V tolerant (TTL or CMOS)

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

Power	
Vcc	5.0 V DC (± 0.2V)
Consumption	RF On : 150mA typ. (depending of antenna) RF Off : 30mA Hard power-down : 10µA (/suspend)

Environment and safety	
Operating temperature	- 20 → + 70°C
Storage temperature	- 40 → + 85°C
MTBF	500 000 hours
CE mark	EN50082 / EN55022 class B
Other standards	RoHS, FCC part 15 pending

### ORDER CODES

PART #	Description
K663A	K663 module
K663-232	Ready-to-use K663 mounted on 65x45 antenna, RS232 link
K663-TTL	Ready-to-use K663 mounted on 65x45 antenna, TTL/CMOS serial link

### PRECAUTIONS FOR INSTALLATION

Those devices use inductive coupling (magnetic field) to power the cards and communicate with them. Precaution must be taken to keep them far from any source of perturbation (e.g. other readers, computers...). Installing the device near a metal surface will decrease the operating distance and increase power consumption. Please contact us if you need any assistance to integrate those devices. **The modules need an external antenna to operate.** The antenna must 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 long experience designing antenna. Please contact us if you need a custom design.

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