

## K663 SERIES

NFC READERS WITH 1 TO 5 OPTIONAL

T=0/T=1 INTERFACES FOR CONTACT SMARTCARDS OR SIM/SAM

### 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.

### CONTACT SMARTCARD AND SIM/SAM

The **K663** is able to drive one T=0 or T=1 smartcard or SIM/SAM without external component. Thanks to an optional expansion interface, its number of slots goes up to 5.

Combining a small footprint and the support of SAM in a single device, the **K663** is the ideal coupler for any application where speed and security of the transactions are key concerns.

### A FEW TYPICAL APPLICATIONS

**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*).

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

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

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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>▪ ASK CTS256B and CTS512B</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 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)

ISO 7816 smartcard interfaces	
Out-of-the-box support for 1 ID-000 mini SIM/SAM slot Support for 1 ID-1 smartcard and 4 ID-000 mini SIM/SAM through Inside Secure AT83C26 smartcard multiplexer (see doc. PNA2236 for details)	
Standards	ISO/IEC 7816 (3 and 4) Supporting both T=0 and T=1 protocols
Smartcard class	5V, 3V or 1.8V cards supported (classes A, AB, ABC)
Card clock	4MHz
Card baud rate	Up to 115200 bps

Hardware	
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 : 6mA

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
H663AC	H663 module

#### 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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