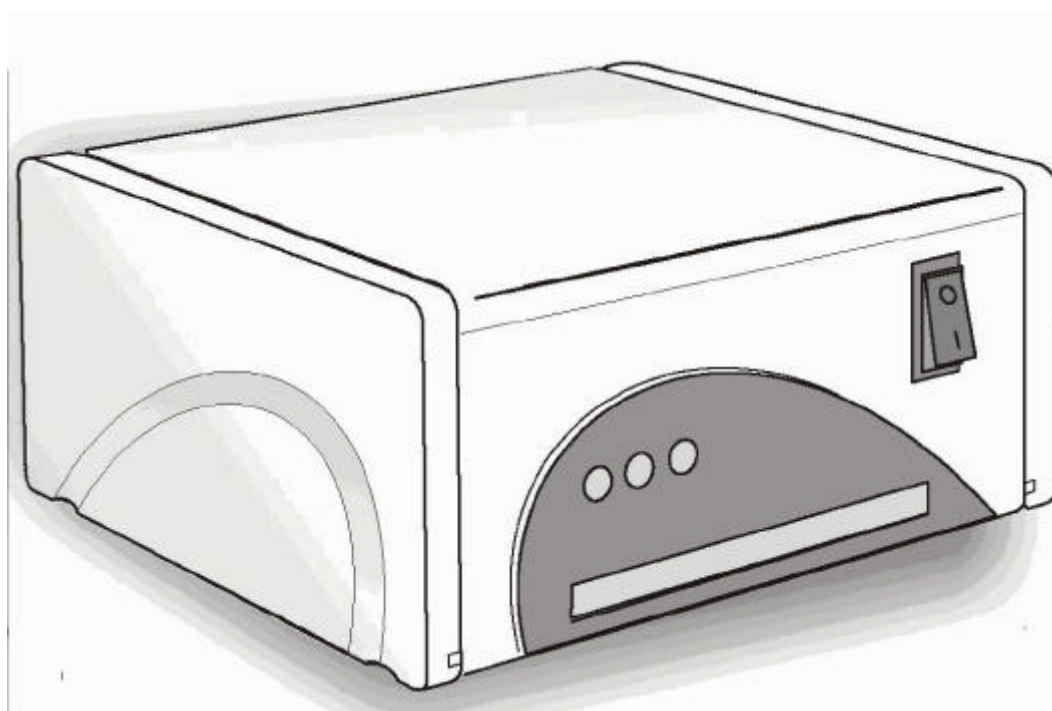


**ASK LDB 2 DESKTOP READER**

## FCC Compliance Statements

This equipment has been tested and found to comply with the radiated limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interferences in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try the correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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 interferences. And (2) this device must accept any interference received, including interference that may cause undesired operation.

The ASK **LDB 2** reader was submitted and a grant of authorization received from the FCC as device under the intentional radiator requirements of Part 15, Subpart C.

The party that incorporates this device into their product is responsible for verification of the emissions produced by the final product and must adhere to the limits specified in the Code of Federal Regulation 47, Part 15, subpart B.

**Compliance accessories:** The accessories associated with this equipment are: shielded serial cable with ferrite tube and linear sector adaptor (12V DC 500mA). These accessories are required to be used in order to ensure compliance with the FCC rules.

**Caution:** Any changes or modification not approved by ASK could void user's authority to operate the equipment. Switching power mode adaptors are prohibited.

## CE Compliance statement

The ASK **LDB 2** reader is in conformity with European requirements, this product has been assessed to the following standard:

EN 300 330  
EN 301 489-3  
EN 50121-4  
EN 60950-1

|         |                       |           |        |
|---------|-----------------------|-----------|--------|
| ASK R&D | Réf. : RD-ST-03022-10 | Rév.: 1.0 | 2 / 10 |
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| USER MANUEL    | LDB 2 |
| DESKTOP READER |       |

## 1 SCOPE OF MANUAL

This manual describes ASK **LDB 2** reader main features and setup information. This manual is intended for use by end users. No specific tools are required for operation described in this document.

### 1.1 UNPACKING AND INSPECTION

Each **LDB 2** kit is shipped with :

- serial cable (length : 3 meters)
- This user manual
- One power supply 110V AC / 12V DC 500mA
- **LDB 2** reader packaged in plastic case



## 2 LDB 2 READER

**LDB 2** readers are contactless readers designed for integrators and operators as development tools as well as desktop readers for card issuing center and point of sales.

**LDB 2** provides the communication between a terminal and customer smart cards.

2.1 READER COMPONENTS

LDB 2 consists of a control board called "coupler board", and antenna board, a DC supply converter board (with two extra SAM sockets) and a contact card interface board.

2.1.1 COUPLER BOARD

The coupler board contains a microprocessor, non-volatile memory and a radio frequency transmitting circuitry. This board communicates with smart cards via RF link (provided by an antenna board), and to the terminal via RS-232 interface. The serial rate is set to 115,2 bps. The coupler platforms are GEN320 or GEN325 elements which can be purchased separately at ASK. These two OEM coupler boards are compliant with ISO/IEC14443-2 directives (Radio frequency power and signal interface). Communications can be executed according to the type A or type B of the directive.

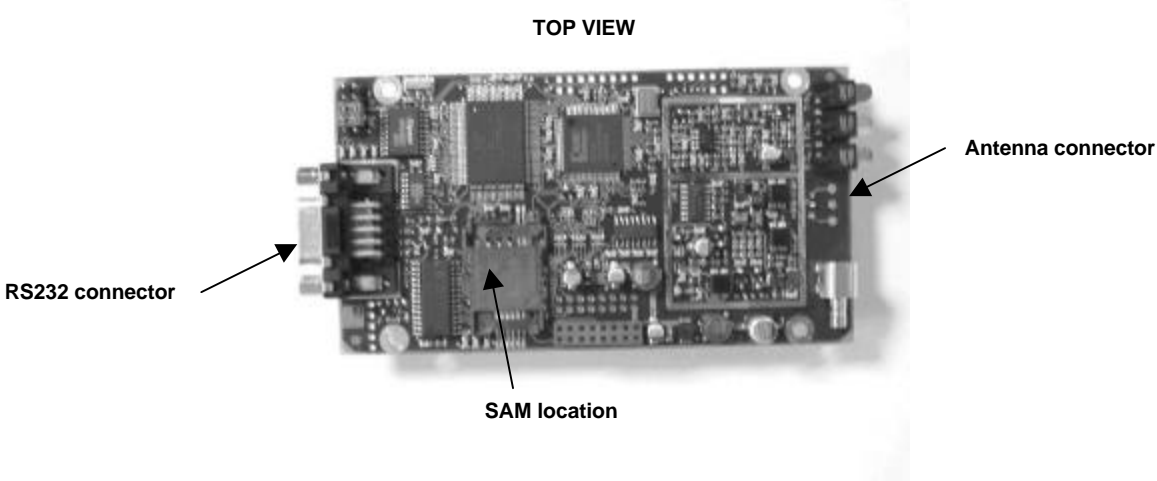


Figure 1 : GEN 320-GEN 325 board

GEN 320 and GEN 325 board are strictly identical, except that on GEN 325, PHILIPS ‘s RC500 chip is added. In this case, the chip just manages MIFARE cryptography mode. The RC500 chip is located (or not) at the bottom of the printed circuit board (PCB).

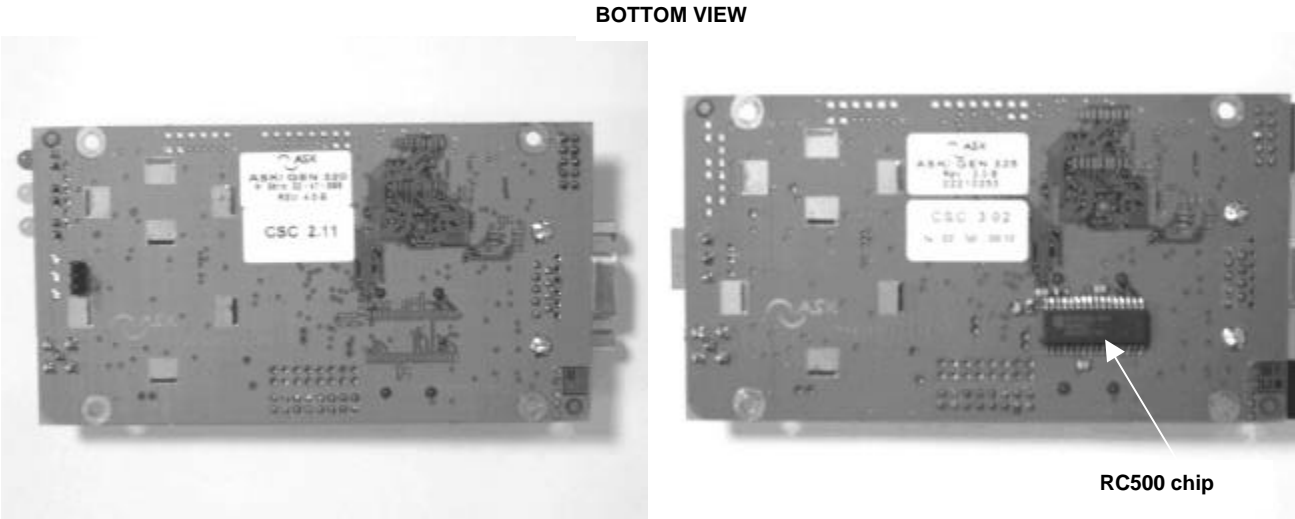


Figure 3 : GEN 320 board

Figure 2 : GEN 325 board

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| USER MANUEL    | LDB 2 |
| DESKTOP READER |       |

### 2.1.2 ANTENNA BOARD

The antenna board consists of a printed circuit board with copper traces forming the transmit and the receive antenna. Antenna may be one of several types, varying in dimensions and connection. **LDB 2** receives GEN 530 antenna because its area (110x120mm) matches well with a desktop application. This antenna has a tuning capacitor, but no setting is required because it has been optimized in factory.

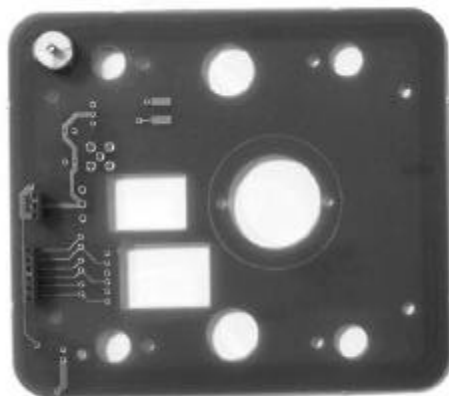


Figure 4 : LDB 2 antenna board : GEN 530

### 2.1.3 POWER SUPPLY BOARD

This board contains a DC-DC converter and two extra SAM locations. Input line should be from 9V to 36V DC. Typically an AC power bloc with output 12V 500mA (without regulation) should be used.

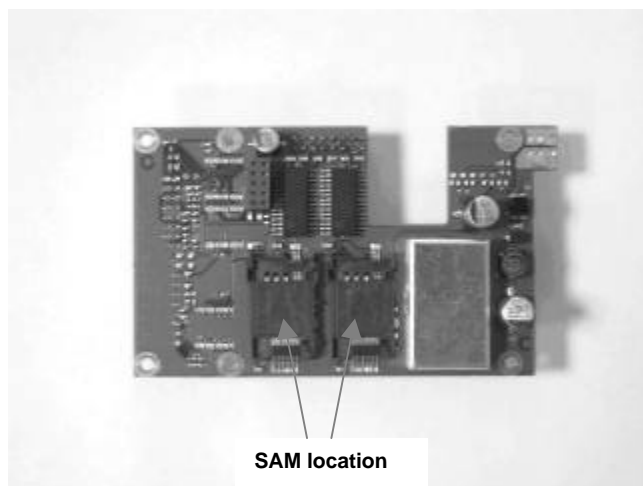


Figure 5 : LDB 2 DC conversion / SAM extension board : GEN 351

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| USER MANUEL    | LDB 2 |
| DESKTOP READER |       |

#### 2.1.4 CONTACT CARD INTERFACE BOARD

This card has been added for allowing standard contact card transactions.

Contact card connector

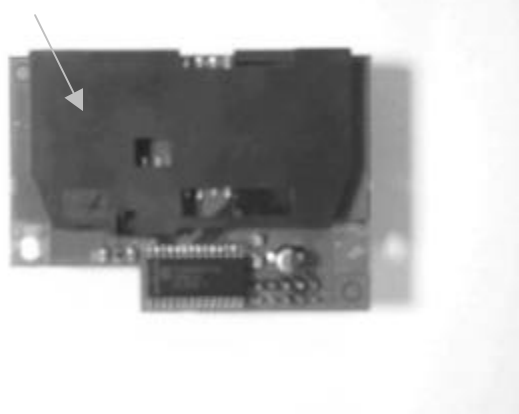


Figure 6 : LDB 2 contact card interface board : GEN 362

## **2.2 ASSEMBLY**

Inside the plastic case these boards are stacked together (Figure 7). This way, no cables are needed :

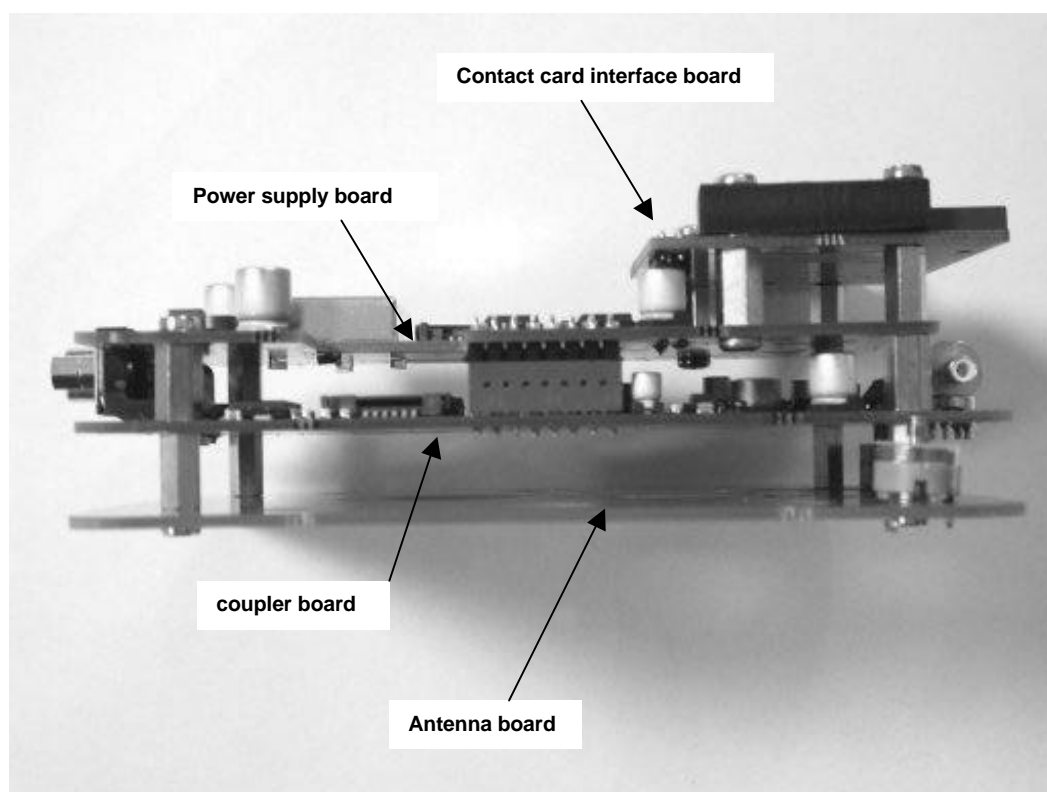


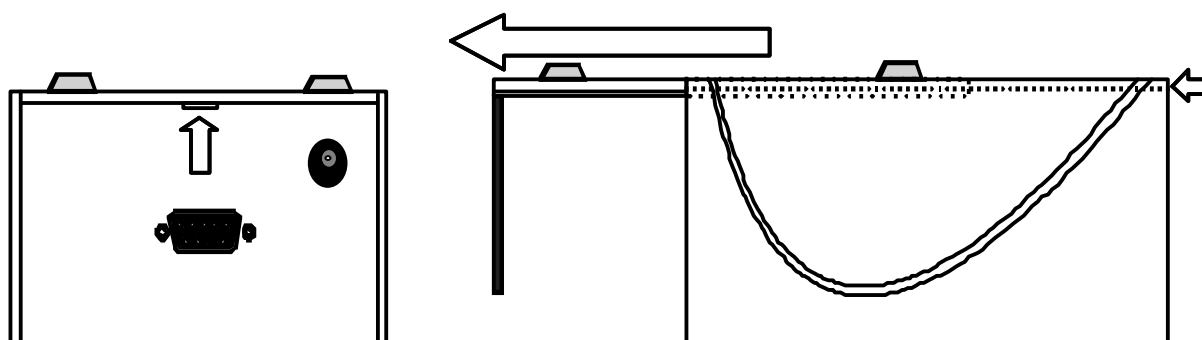
Figure 7 : stacked boards in reader

### 3 READER SETUP

#### 3.1 INSTALLING A NEW SAM IN READER

In most applications, one SAM (Security Application Module) or more is required. These components are provided separately, so to set a SAM, the plastic case should be opened.

For opening, flip over the plastic case. You have to put a blade in the rear slot and lift the bottom of the case in order to set free a central ergot. Then the bottom of the box should be removed by sliding in the front side direction.



The stacked board will appear as in Figure 7, the first SAM should be installed on coupler board GEN 32X (Figure 1) and next SAMs should be installed on DC conversion board GEN 351 (Figure 5).

**Caution :** In a first time,  $\mu$ SIM SAMs must be gently inserted in the open door socket (Figure 8), then in a second time the door should be locked.

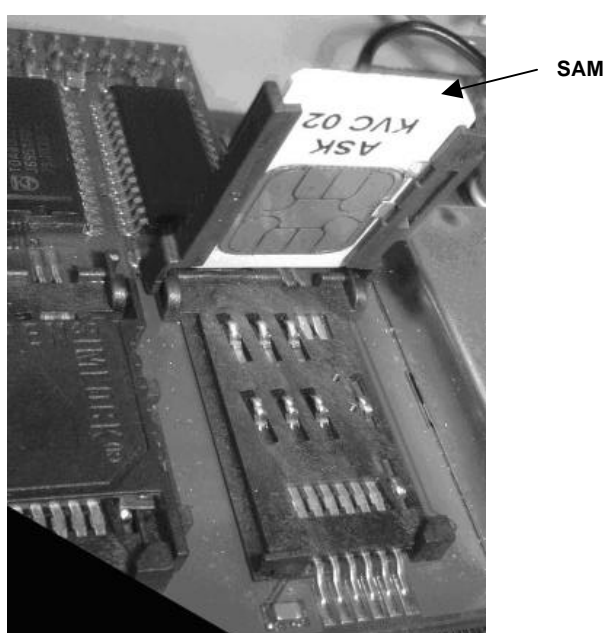


Figure 8 : SAM in open door



|                |       |
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| USER MANUEL    | LDB 2 |
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### 3.2 READER CONNEXION

The reader's DB9 should be connected to a RS232 serial port, usually to a computer via the serial cable provided.

Plug the main adapter included in the « Power-Jack » connector. The main adapter should provide 12V DC – 500mA.

Turn on the switch located at the front side, the red LED will light at power-on. The **LDB 2** is then in power and ready to work.

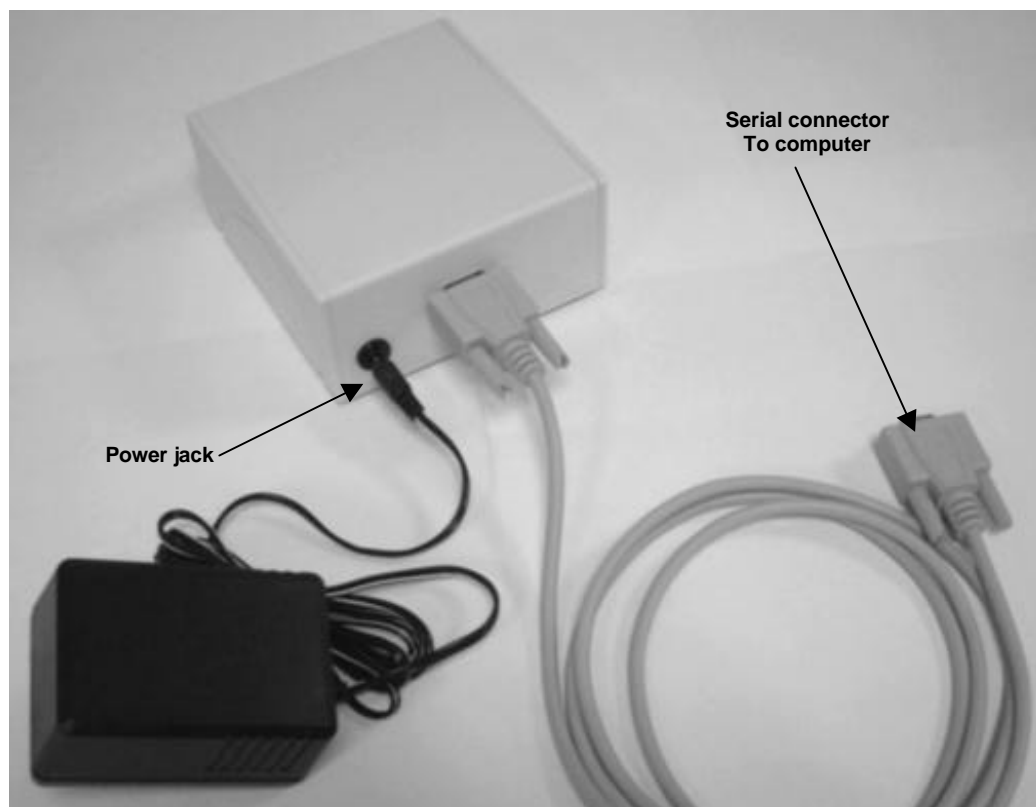


Figure 9 : LDB 2 connexions

|                       |              |
|-----------------------|--------------|
| <b>USER MANUEL</b>    | <b>LDB 2</b> |
| <b>DESKTOP READER</b> |              |

## **4 HOW TO USE THE READER**

### **4.1 CONTACTLESS OPERATIONS**

All the top surface of **LDB 2** reader is active. Contactless smart card must be laid flat on the reader, yellow LED is turned on when operation is correct.

### **4.2 CONTACT OPERATIONS**

The smart card should be inserted, chip on top, in the front slot of the **LDB 2** reader (card contact faces triangle on reader front side).

The card should be pushed until a resistance appears (reader's contacts fall down on card's contact).

### **4.3 SOFTWARE**

The LDB is delivered by default with an application software called CSC which supports the ASK cards and C.ticket® families.

The external LEDs of the reader can be controlled by customer applicative software using CSC software commands.

In the same way, the GEN360 contact card reader and the extra SAM modules supported by the GEN351 board have to be managed by the host application via CSC protocol.

### **4.4 CLEANING**

No adjustments on the reader are required. To clean, simply wipe with a wet cloth and plastic cleaner, abrasive products are prohibited.