

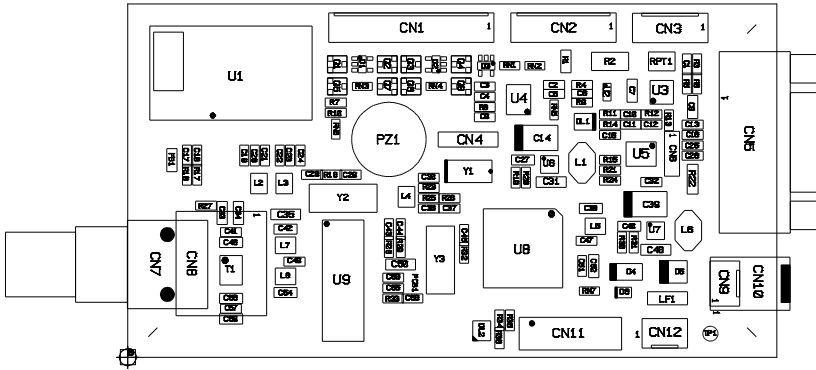
## Proximity reader ISO 15693/14443 with optional Bluetooth® and Li-Ion battery

<b>Board</b>	Dimensions	110 x 60 mm (excluding connectors)
<b>Power Supply</b>	Supply voltage	+5 V DC or 3.7 V Li-Ion battery
	Current consumption *	~150 mA with active RF and Bluetooth. up to 800 mA if recharging
	Connectors	- Standard DC jack - 2-pin connector (step 2.54 mm) - 3 / 4 pin battery connector
	Power switch	Provided by user, can be connected to 2-pin strip (step 2.54)
	Recharge section (optional)	- battery recharge management circuit - stand-alone LED for charge status monitoring - battery discharge estimation circuit
<b>RF</b>	Frequency	13,56 MHz
	RF Power	~380 mW
	Connector for ext. Directly Matched ant.	6 pin strip (step 2.54), optional 90° connector. Cable must be < 10 cm
	Connector for ext. 50 Ω antenna	BNC female
	Supported Protocols (RW)	- ISO 15693 - ISO 14443 A - Mifare® Standard & Ultralight family - ISO 14443 B - ST SRI family
	Security	Internal storage of 32 write-only mifare keys
	Reading range *	Approx. up to 12 cm ISO15693, up to 7 cm ISO14443
<b>Microcontroller</b>	Type	RISC 8 bit
	Flash	64 / 128 KB
	RAM	4 KB SRAM
	EEPROM	2 / 4 KB
	Real Time Clock	Available. Does not retain time after power down.
<b>Interfaces</b>	RS232 serial port	9600 to 115200 baud, 8,n,1 3 lines (RX, TX, GND) + optional RTS / CTS flow control. Female DB9 or 3-pin connector (2.54 step)
	Bluetooth (optional)	Class 2 radio with integrated antenna, up to 10 m Serial Port Profile (SPP). Not shared with RS232 port.
<b>I/O</b>	LED	1 General purpose bi-color LED (red and green)
	Buzzer	Piezoelectric
	Digital I/O	4 inputs, 8 outputs (strip lines, step 2.54 mm)
<b>SDK</b>	Comm. protocol	Full documentation
	Libraries & docs	C, C#.net, Java binaries and sources
	Demo applications	Reader Control Panel, Card ID, Scan Manager
<b>Firmware</b>	Upgradeable	In-field by serial port
	Operating modes	Host controlled, automatic scan.

\* depends on antenna type, tag size and environment

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For more information, contact the sales office. Contacts can be found on our web site at <http://www.lab-id.com>

## Board layout



### CN1: Output

When reader activates an output, its pin is pulled down to GND. You can drain current from pin 1 (or from other source) and use a resistive load.

1. Power source (+3V / +5V / cell voltage – according to chosen option). It must not be connected to a power supply
2. Out 1
- ...
9. Out 8
10. GND

### CN2: Input

In order to activate an input, its pin must be pulled down to GND by an external device. Inputs 1-3 can optionally be used for A/D conversion if Bluetooth module is not mounted

1. Power source (+5V). It must not be connected to a power supply
2. In 1
- ...
5. In 4
6. GND

### CN3: Battery

Battery power supply. Pins 3 and four are connected: only one of them is needed.

1. VBAT – battery positive pole
2. BAT-NTC – Input for external thermistor for continuous cell-temperature monitoring and prequalification.
3. GND
4. GND

### CN4: Direct I/O lines (optional)

Optional I/O pins, connected directly to microcontroller. These pins will work only if output pins and circuitry are disconnected

1. Out 1
- ...
4. Out 4

### CN5: RS232 DB9 connector

Standard RS232 female DB9.

1. -
2. TX
3. RX
4. -
5. GND
6. -

7. CTS (enabled only in customized firmware)
8. RTS (enabled only in customized firmware)
9. -

### CN6: RS232 strip-line connector

Pin 3 is the most external (square in the rear of the board). RX and TX are considered from reader's side.

1. RX
2. TX
3. GND

### CN7: 50Ω antenna BNC connector

You can connect any antenna and cable tuned with 50Ω impedance to the standard BNC connector.

### CN8: Directly Matched antenna connector

A dedicated antenna can be connected through a flat cable (< 10 cm). Only LAB ID antennas are recommended.

1. RX
2. GND
3. TX1
4. GND
5. TX2
6. GND

### CN9: Power supply

Stabilized power supply can be provided for reader functions, battery recharge or both.

1. +5 V DC stabilized
2. GND

### CN10: DC jack power supply

Stabilized power supply can be provided for reader functions, battery recharge or both.

1. +5 V DC stabilized
2. -
3. GND

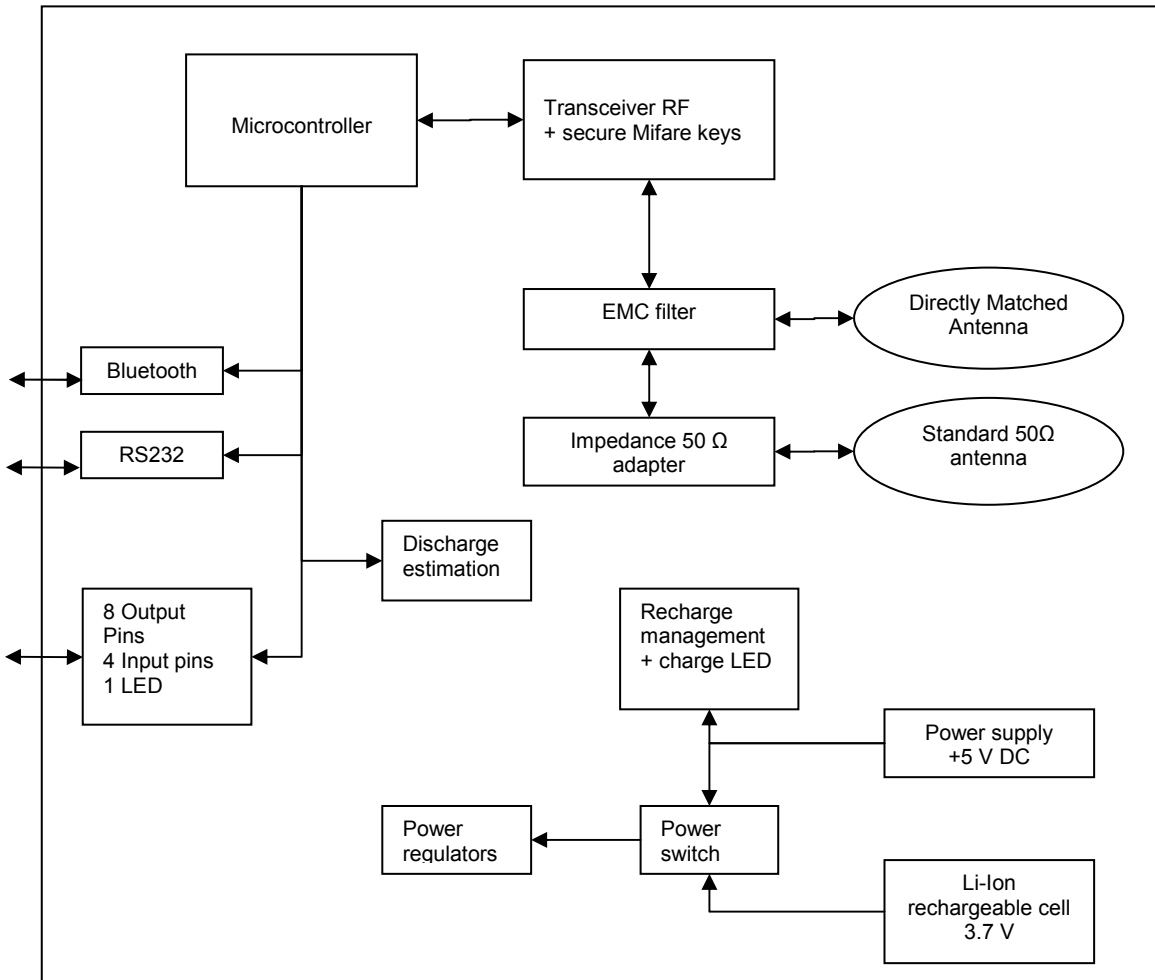
### CN11: Programming port

Leave this port disconnected.

### CN12: Power switch

You can connect a switch to these pins in order to power on or off the reader. If a switch is not needed, just connect the pins with a jumper.

## Components



## Battery

A Li-Ion battery may be provided by LAB ID for handheld applications. The charge estimation circuit will evaluate the correct battery status only after a full discharge-recharge cycle. It is possible to recharge batteries even if an external power switch is in off position, provided that a power supply is connected. A battery recharge cycle lasts about 3-4 hours. When it completes the charge led will blink regularly at 1 Hz. *Use only batteries recommended or provided by LAB ID in order to avoid damages to the equipment or any other kind of damages. LAB ID can not be held responsible for any damage caused by any misuse of batteries.*