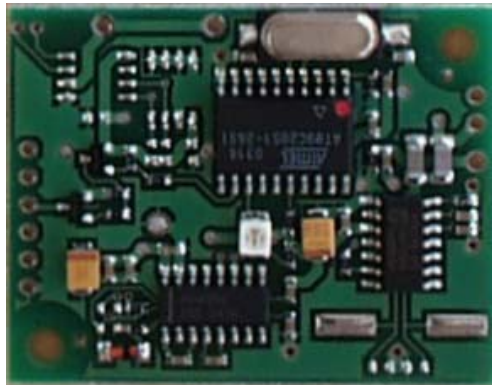


# USER GUIDE

Version 06/05



## Leser 1 plus RF-reader with TTL-Interface



### **Important! Read by all means!**

**To maintain the perfect shipping conditions and to ensure safe operation please observe the instructions in this Operation Manual. Damages caused by non-observance of these instructions will invalidate any guarantee. We further cannot take liability for any consequential damages.**

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## 1. Introduction

Dear Customer,

We want to thank you for purchasing this Standalone Reader.

With this unit you have acquired a product built to the latest state of engineering. Its operation is simple and easily understood. Nevertheless please read this Operation Manual carefully for optimum utilization of all of its features.

## 2. Intended Use

The intended use of this Standalone Reader is the acquisition of transponder data by use of an Antenna Module. These data will be compared by the Standalone Reader with the transponder data stored in an internal EEPROM. If any one of the stored transponder numbers is recognized the Reader will switch an output. Any use other than the one pointed out above is not admissible.

Design and construction of this Module correspond to all European and national requirements for Electro Magnetic Compatibility (EMC). The unit carries the CE-Sign, the conformity has been proven. All appropriate commentaries and records are in the possession of the manufacturer.

## 3. Safety Instructions

### Important Informations on the Reader Module:

- In conjunction with the Reader Module the Antenna builds a tank circuit creating high voltage at the antenna terminals. Please avoid any contact to these antenna terminals during operation of the Reader and especially keep children at a safe distance from the device.
- The RF Reader Family has not been designed to safely lock or secure doors. During prolonged absence from any room made accessible by a Reader the door must therefore further be locked by means of the original key.
- In order to guarantee sabotage safe operation do in any case mount the Reader's electronic circuit - unreachable for non-authorized persons - inside of the building.
- We cannot take liability for damages caused by improper and/or careless handling of RF Reader products.

For use with the RF Readers specific Transponders suitable for these Readers are necessary.
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### **Notes on Installation of the Reader Modules:**

- The Modules are considered Reading and Controlling Devices of Mode of Operation Typ 1 according to EN 60730 (VDE 0631).
- When installing the Reader and Antenna Modules ensure a clean and dry environment.
- The individual Modules must be dry and free of dust.
- For protection of the power supply line use a slow-acting 2.5 A fuse.
- In case a bell transformer is used to provide the necessary power to the Reader Modules of the RF Reader it has to correspond with the requirements according to EN 61558-2-8 (DIN VDE 0570 Part 2-8: Special requirements for bell and ringer transformers).

### **Notes on Placing and Mounting the Reader Modules:**

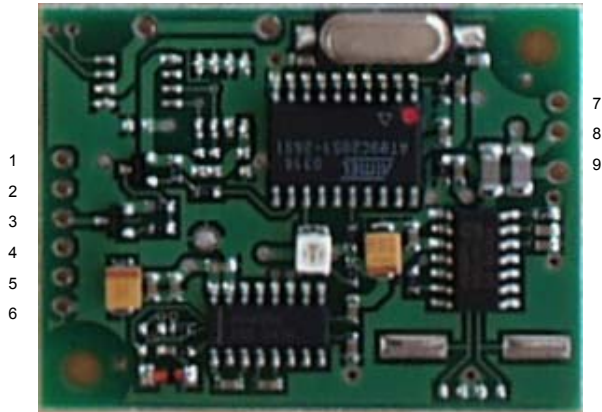
When mounting Reader and Antenna the following guidelines have to be observed:

- Metallic objects must not be placed between Antenna and Transponder.
- The Antenna should be mounted on non-metallic material (wood, concrete) at a minimum distance of 3 cm from any metallic object.
- The connecting line of the Antenna must not be of any length in excess of 1.5 m. Otherwise the reading distance stated for the Reader Modules in Section 12. **Technical Specifications** cannot be guaranteed.
- The connecting line of the Antenna must not be mounted in the immediate proximity of any other line carrying electric current.
- Two or more connecting lines of any Antennas must not be mounted side by side.
- **When mounting several RF Readers inferences of Modules among each other can be avoided if a minimum distance of approximately 1 m is kept between Reading devices.**

## 4. Device Description

The RF-reader Leser 1 plus with TTL Interface is a plug-in module, which builds together with the power module POW a reader unit. The connection to the power module POW is simply done with pin connectors (2,54mm grid), as both pcs have congruent pinnings.

PCB: Leser 1 Plus



### Terminal positions:

- |       |   |
|-------|---|
| 1 ... | +5V   |
| 2 ... | input push button   |
| 3 ... | output open collector (max. 200 mA)                             |
| 4 ... | output data, TX-TTL   |
| 5 ... | input data, RX-TTL  |
| 6 ... | GND   |
| 7 ... | Antenna 1 (for pin connector to Powermodule)                    |
| 8 ... | Antenna 2 (for pin connector to Powermodule or screw connector) |
| 9 ... | Antenna 1 (for screw connector)                                 |

## 5. Functional Description

The RF reader Leser 1plus is used in connection with an external control unit, which uses the Leser 1plus simply as reading head for RF transponders. The communication between Leser 1plus and control unit is based on a simple ASCII protocol on a serial TTL(5V - RX,TX,GND)) interface.

The Leser 1plus reads the transponder and sends the number to the control unit. On the pcb there is also an open collector output, which can be activated by command through the serial interface.

There is no memory on the leser 1plus pcb.

## 6. Connections

The exact terminal positions can be seen in the table in Section 4. **Device Description** above.

It is recommended to use the power module POW as power supply to the Leser 1plus. The connection pins 1 to 6 and 7 and 8 are layouted in a 2,54mm grid, so that pin connectors can be used for soldering both bcb to a sandwich assembly. In case of using the power module POW please refer to the user guide of the POW for detailed description of the connectors on the POW module. All pins are available on the POW.

If an external power supply is used:

- make sure that it provides a stabilized 5V source with a low ripple (<50mV).
- connect the antenna module to the pins 7 and 8 of the Leser 1plus.
- alternatively you can use a 3,5mm screw terminal on pin 8 and 9 for the antenna connection
- connect the power supply (5V, GND) to the pins 1 and 6 of the Leser 1plus.

## 7. Putting into Operation

After the Leser 1plus and the Antenna have been connected in accordance with the connection scheme the Leser 1plus can be put into operation.

After activating the power supply the Reader is in permanent Reading Mode.

## 8. Operation

### Setting the interface parameter

Please keep in mind that the reader Leser 1plus works on a TTL (5V) interface!  
It cannot directly communicate to a PC on a RS232 interface.  
(If you need this feature please contact Codatex for further information).

Following parameters have to be set for the serial communication:

Baudrate : 9600  
Databyte: 8  
Parity: keine  
Stopbits: 1  
Flusssteuerung: keine

ASCII-Codes (Decimal): **<STX> = 002**  
**<EOT> = 004**  
**<ACK> = 006**  
**<NAK> = 021**

### Interface protocol for the reader Leser 1 plus

The reader Leser 1plus is used for reading transponder numbers and transferring them to a control unit through a serial TTL interface. Additionally an open collector output can be activated by command.

Following commands are used:

1) **Start up**

After switching the power on the reader Leser 1plus sends a OK on the serial interface:

**<STX>OK<EOT>**

2) **Transmission of transponder numbers**

After power on the reader starts reading. In case a transponder is close to the antenna, the number shall be read and transferred on the serial interface. The format is:

**<STX>[Data]<EOT>**, [Data] is a capital R followed by a 10 digit number (5byte HEX format)

Example: **<STX>R1D37FA4B02<EOT>**

3) **Switch ON/OFF transmission of transponder numbers**

The transmission of numbers on the serial interface can be switched off and on by following commands:

**<STX>N0<EOT>** switches the transmission off

**<STX>N1<EOT>** switches the transmission on

**<STX><ACK><EOT>** is sent from the reader as confirmation for the correct command

**<STX><NAK><EOT>** is sent from the reader in case of an error

4) **Open Collector output switch on and off**

The onboard open collector (pulls output to GND) output can be switched on and off by following commands:

**<STX>R1<EOT>** open collector is activated

**<STX>R0<EOT>** open collector is deactivated

**<STX><ACK><EOT>** reader confirms correct command

## 9. Care, Maintenance and Disposal

Besides providing the specified voltage and its intended use as a device for acquisition, storage and interpretation of Transponder Data the Standalone Reader does not require any special care or maintenance.

An RF Reader that highly unexpected has become unusable must be disposed of observing all relevant legal regulations.

## 10. Debugging

If all notes and regulations of this and other relevant Operation Manuals (Online Help, etc.) are observed correctly there should be no unexpected malfunctions. If this nevertheless happens to be the case, please do not attempt to make any own repairs. Return the device to your point of purchase and have it checked and possibly repaired by a qualified engineer. Opening or improper handling of the devices will invalidate any guarantee.

## 11. Technical Specifications

Operating voltage	: 5V $\pm$ 5%, stabilized, ripple <50 mV
Power Consumption	: max. 200 mA
Transmitter Frequency	: 125 kHz
Open collector outout current	: max. 200 mA (pulled to GND), max. power dissipation 300 mW
Max. Reading Distance	: up to 7 cm
Max. Distance pcb to antenna module	: 1,5 m
Measurements	: 45 x 35 x 10 mm
Operating Temperature	: 0°C bis 45°C

## 12. Notes on Manufacturer

CODATEX Hainzmaier GmbH & Co. KG  
Ischlerbahnstraße 15  
A – 5020 Salzburg

Email: [info@codatex.com](mailto:info@codatex.com)

Internet: <http://www.codatex.com>



We herewith declare, that this RF reader is in accordance with the basic specifications and other relevant regulations of the directive 1999/5/EG.

The original declarations of conformity (Nr.: G0M20208-7058-C) can be found on our homepage under [www.codatex.com](http://www.codatex.com).