Elatec TWN3 Mifare

Functional Description

1. General

The TWN3 Mifare is an integrated device for contactless read/write operations on a transponder, i.e. a transponder card.

2. Description

Please refer to the block diagram and the manual for better understanding of the description.

2.1. Power Supply

The device is supplied with power via the the communication cable. In case of USB, the device is directly supplied from the USB bus. The voltage is 5V nominal, but the valid range for a USB device, which is 4.3V to 5.5V is tolerated.

2.2. Host Communication

Data communication with the host is accomplished with either USB or RS232. In case of USB, the device acts as a full speed (12Mbit/s) device. In case of RS232 the standard data rate is 9600 Baud.

2.3. Interface Processor

The micro controller AT89C513xA acts as protocol converter (“interface processor”). It converts the data stream from the host controller to appropriate commands for the Mifare reader chip set. On the other side, data coming form the reader chip set is converted into the appropriate format for the host.
Furthermore, the interface processor takes over control of speaker and the red and the green signal LED.

2.4. Reader Chip Set

The reader chip set consists of a microcontroller and a RF frontend. It handles the transceiver functionality for contactless communication with a transponder at a frequency of 13.56MHz. Modulation is ASK 100%.

2.5. Oscillators

The device is equipt with three oscillators. The interface processor is clocked with 24MHz, the reader microprocessor is clocked with 6MHz, the reader RF frontend is clocked with 27.12MHz.