Description

The MC is a high security Read-Write RFID Transponder. A challenge and re-sponse cryptoalgorithm with 96 bits of user-configurable secretkey contained in EEPROM are implemented in the device.
A freely programmable USER-MEMORY of 30 bits and a unique device identification of 32 bits are characteristic of the Magic. Bits 15 and 14 of word 1 are used as Lock-Bits. At delivery, these two bits have the contents “10” which is the requirement for writing or erasing the memory. Data transmission to the transceiver is performed by modulating the amplitude of the electro-magnetic field. Receiving data and commands takes place in a similar way.

Features

• On Chip Crypto-Algorithm (Challenge & Response)
• Two Way Authentication
• 96 bits of Secret-Key in EEPROM (unreadable)
• 32 bits of fix Device Identification
• 32 bits of USER-MEMORY (UM) with read access (OTP)
• Secret-Key programmable via CID-Interface
• Lock-Bits to inhibit programmation
• Data transmission performed by Amplitude Modulation
• Bit period = 32 periods of carrier frequency

Memory Organisation

The 160 bits EEPROM are organised in 10 words of 16 bits. Word 0 and 1 contain the USER-MEMORY and the LB1 and LB0 Lock-Bits.
Writing is only possible if LB1 = "1" and LB0 = "0". Words 2 and 3 contain the ID which can never be altered.
Words 4 through 9 contain the 96 bits of secret-key. These bits influence the crypto-algorithm but cannot be read directly.