DACOM
West

RFID / NFC Reader Board
13.56MHz Transceiver MLX90132

The RFID/NFC Reader Board is a universal HF frontend for mobile and stationary 13.56MHz reading devices. The MLX90132 RFID-Transceiver IC from Melexis used here supports all common used standards like:

- ISO/IEC 18092 (NFC)
- ISO/IEC 14443A und B
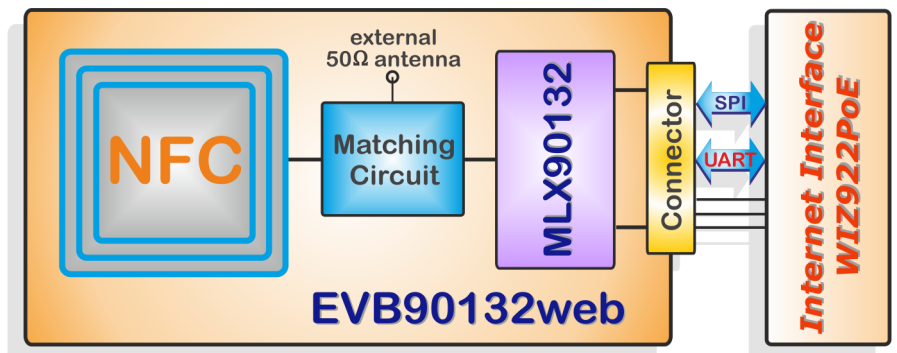- ISO/IEC 15693
- ISO/IEC 18000-3 mode

The MLX90132 is a 13.56MHz, fully integrated, multi-protocol RFID/NFC transceiver IC. It has been designed to handle sub-carrier frequencies from 106 to 848 kHz and baud rates up to 848kbit/s. The dual driver architecture of the MLX90132 requires minimal external support components.

The MLX90132 embeds tag emulation functionality for NFC support. Enhanced tag and field detection capabilities provide significant power consumption reduction in RFID reader configuration and in NFC mode.

The digital section of the MLX90132 handles the low protocol layers from API to physical layer using advanced bit and frame encoding/decoding functions. It contains a digital demodulator based on sub-carrier detection and a programmable bit/symbol encoder/decoder. It also encodes and decodes the start and stop bits, parity bits, extra guard time (EGT), start and end of frame (SOF/EOF) and CRC. Its 528 bytes buffer allows buffering of an entire RFID frame.

In the below function diagram all the integrated components are shown. The board allows an operation with the integrated PCB antenna or an external 50 Ohm antenna.

There is a serial interface to a free to choose Microcontroller. Therefore it is easy to implement a fully functional NFC reader. For software support free ANSI-C code is available.

Feature

- Conform with ISO/IEC 18092 (NFC)
- Conform with ISO/IEC 14443 A1 and B2
- Conform with ISO/IEC 15693
- Conform with ISO/IEC 18000-3 mode 1
- Standard SPI/UART interface
  with 528 Bytes Buffer
- High speed communication (848kbit/s)
- Embedded RF field and TAG detectors
- XTAL Oscillator frequency 27.12MHz

- Transmit power up to 317mW
- Power Down Mode = 1µA typ.
- Idle Mode: 3mA max.
- Transmit Mode: 80mA typ.
- Power supply range: 2.7V or 5V
- Temperature Range: -40°C to 105°C
- Low external component count
- Board Size: 40mm x 29.5mm

RFID Reader Board and Internet Interface
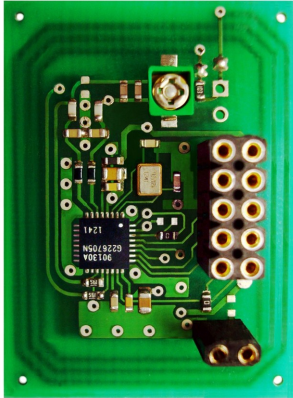
WIZ922PoE

EVB90132web

Connector Interface

Pin Name	Description
MOSI	SPI Data Input
NSS	SPI Slave Select, low active
MISO	SPI Data Output
SCK	SPI Clock
GND	Ground
NC	NC
VDD3V3	3.3V Regulator-output from Interface Module
VDD	Main power Supply voltage 5V
UART_TX_IRQ_out	UART Transmit pin / Interrupt output
UART_RX_IRQ_in	UART Receive pin / Interrupt input

Block Diagram MLX90132