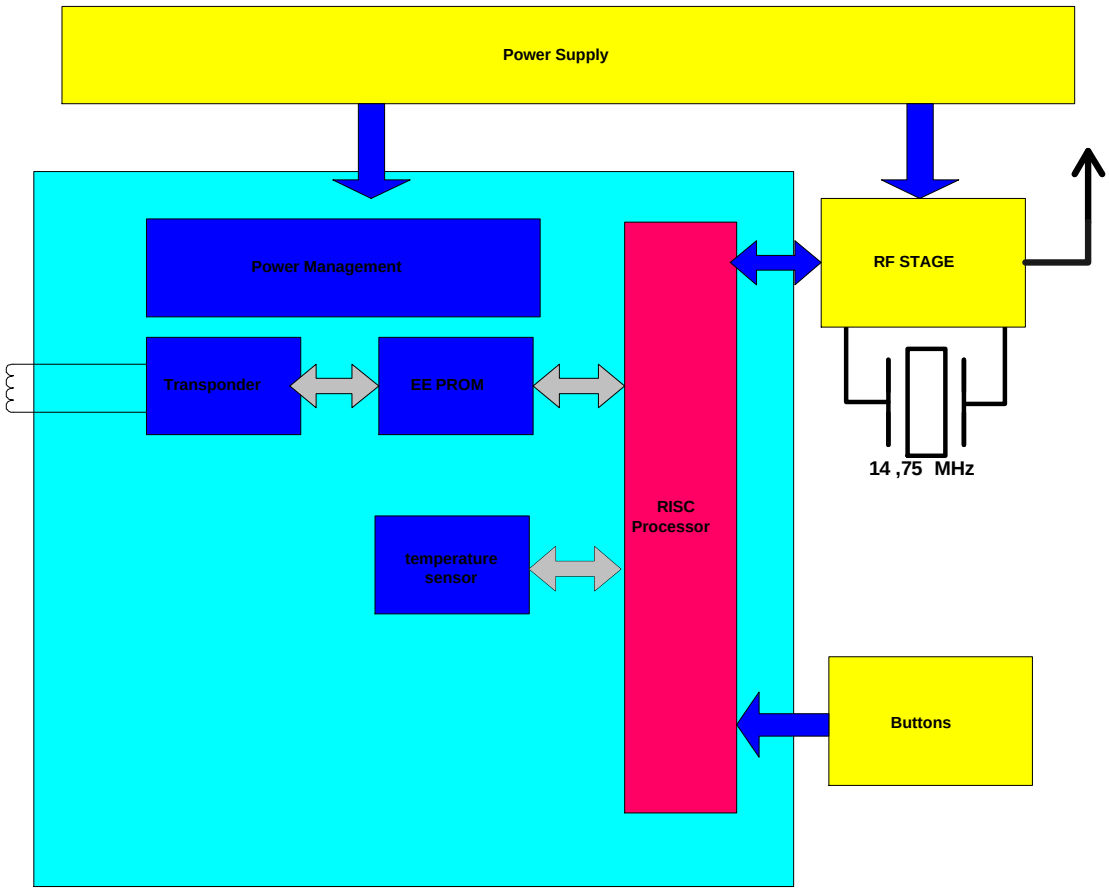
Block Diagram Functional description

Key: **5WK4 9264**

BLOCK DIAGRAMM 5WK49264

The block diagram below shows the main electronic units of the transmitter:



Functional description Remote Key (RK)

The Remote Key system consists of the following functional blocks, which can be identified in the block diagram:

- Power supply
- Microcontroller
- Contact less immobilizer interface
- User interface (Buttons)
- RF stage

Power supply

The Remote Key is supplied by a single lithium coin cell CR2430.

Microcontroller

The Philips PCF7945ATT microc ontroller is based on an 8Bit Harward architecture RISC core and integrates, among others, these features:

- Internal firmware ROM
- Internal application Flash -ROM
- Internal RAM
- Immobilizer security transponder functionality
- Internal RC oscillator for CPU clock
- Internal temperature sensor

Contact less immobilizer interface

Immobilizer interface consists of an external tuned LC circuit connected to the microcontroller.

User interface (Buttons)

For user interaction, the RK is equipped with 5 mechanical buttons. Button signals are low active and are handled by the microcontroller.

RF stage

RF stage includes the RK's loop antenna. Main component is the Chipcon CC1070 transmitter IC. It is contains a programmable fractional N PLL synthesizer controlling transmissi on frequency. It integrates also the PLL reference oscillator to which an external high precision crystal is connected. Further the IC takes care of data encoding (e.g. MANCHESTER) and modulation according to the programmable parameters.

Global functional ity

Immobilizer Transponder mode:

The microcontroller in combination with the contact less interface circuitry acts as security transponder when coupled to a base station triggering this mode. **No RF transmission is used in this operation mode.**

Remote Key Mode:
Triggered from a button press initiated by a user, the microcontroller wakes from sleep mode and initialises the registers of the RF IC needed for operation. Information from internal sensor is used to compensate for temperature related frequency drift of PLL reference crystal.
Button information is transmitted to the receiver unit on car side using a defined telegram structure. The Remote Key is a dual channel system and two frequencies within the same frequency band are used for transmission. The same button information is transmitted once per RF channel on short button presses. Longer button presses result in additional comfort telegrams being transmitted, alternating between RF channels, to inform the car about this fact.

Oscillator frequencies
generated or used
in the device: : 14.75MHz / 433.670 MHz / 434.251 MHz