

Functional Description / User Manual

of the

SIEMENS VDO

Radio frequency remote control system

type

HMC TG

FUNCTIONAL DESCRIPTION

1 System Components

The HMC TG System is a vehicle remote keyless entry (RKE) system. This system consists of a Stand alone- type of receiver(SRx) with corresponding a RKE transmitter. SRx has implemented on board with RF generic receiver device

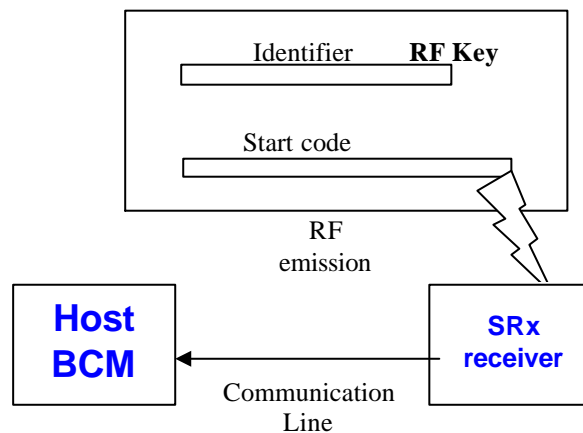
The described system is a radio-frequency remote control for central doors locking / unlocking, trunk release and Panic activity of an automotive vehicle. This system will be a part of the equipment of the HMC TG vehicles.

The system is composed of the following ones:

- transmitter with 4 buttons (doors locking, door unlocking, and trunk release)

System Operation:

To serve a remote keyless entry system for the HMC TG RKE system. Remote keyless entry function is provided by the RF system of the SRx and the RKE transmitter. The operation of these functions are as follows:



Remote keyless Entry:

The RKE transmitter transmits at 433.92 MHz for ECE (or 315MHz for NA) an FSK modulated data signal to the SRx. The RF system of SRx receives this encrypted RF signal. The SRx send the signal to corresponding the host Body control module through single wired K-line bus then the host module broadcasts the requested remote commands to the appropriate control modules in the vehicle through CAN –communication line . In general the following functions are provided:

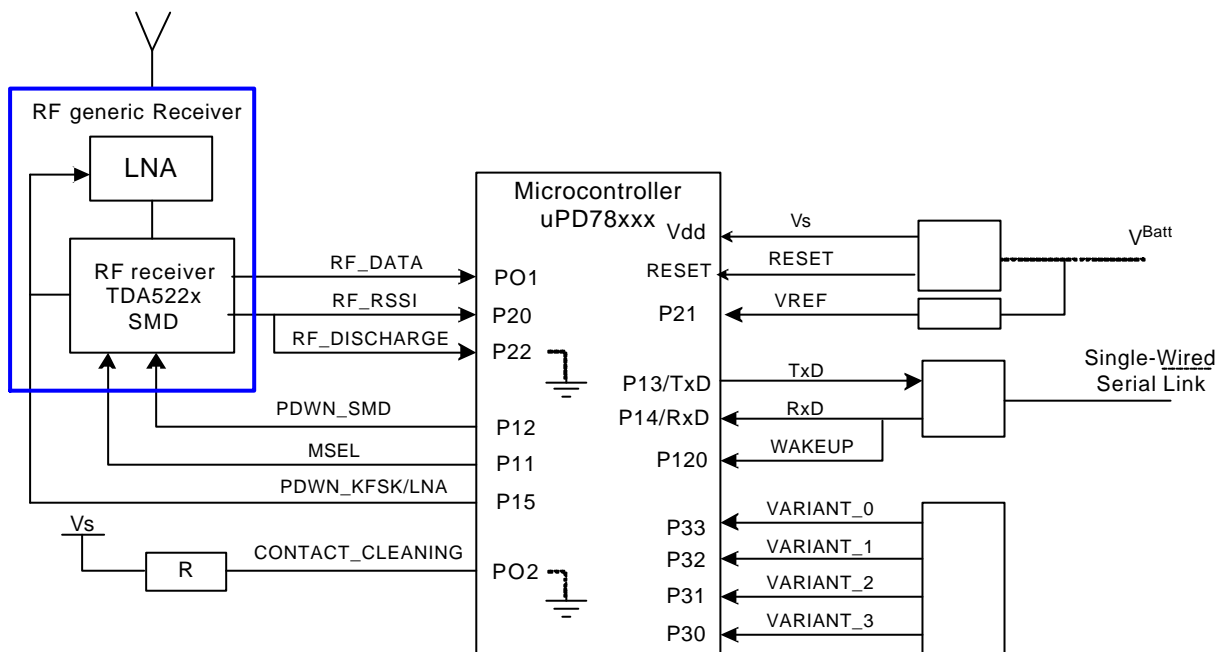
- Lock the car
- Unlock the car
- Unlock the trunk of the car
- Panic

2 Variants:

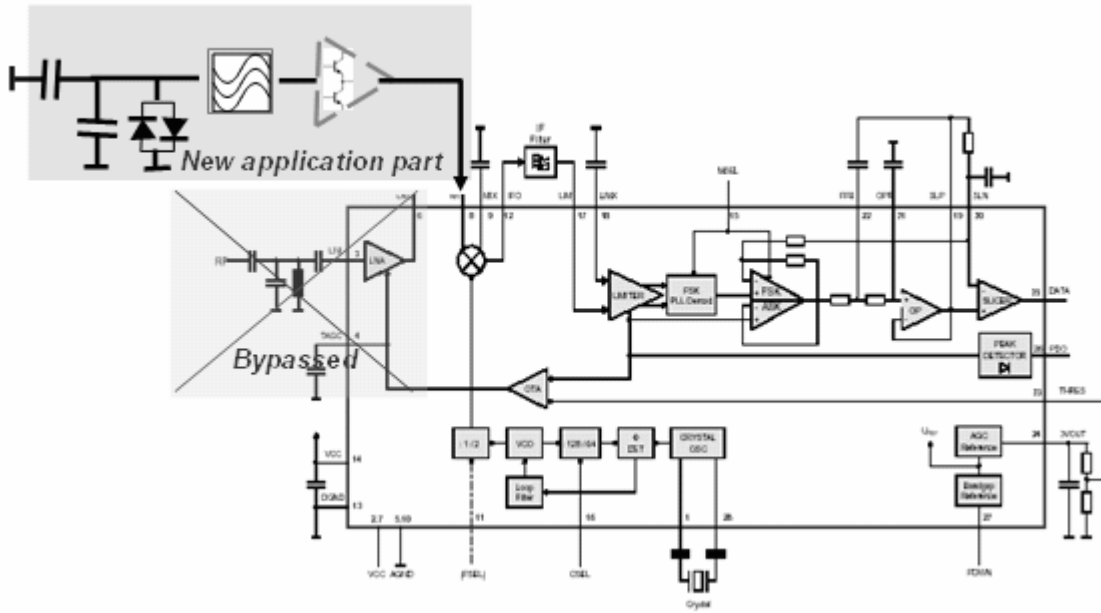
Type designation	Difference
5WY8212/8213	RKE transmitter 315/ 433.9MHz
5WY8222/8224	Stand alone type of receiver 315/ 433.9Mhz
5WY8230/8231	RKE generic KOR-receiver device 315/ 433.9Mhz

3 Block diagram

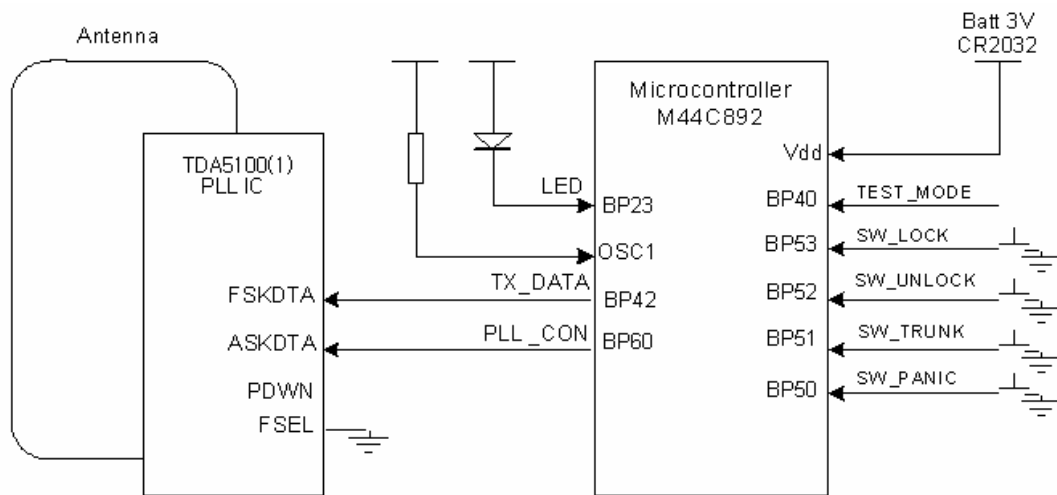
3.1 Block diagram SRx receiver(5WY8222/8224):



3.2 Block diagram RF generic KOR-receiver device (5WY8230/8231):



3.3 Block diagram RKE transmitter(5WY8212/8213):



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4 Technical Data transmitter

Carrier frequency:	315.00MHz± 150kHz / 433.9MHz ± 150kHz
Output power Europe:	< 10mW
Modulation:	FSK
Frequency Generation:	PLL device
Number of channels:	1
Supply voltage:	3 V
Battery type:	lithium, CR 2032
Range:	< 6m

8. Typical usage pattern RKE transmitter

30 lock / unlock operations in 24 hours with a typical transmission duration of 270 milliseconds → 1.25 lock / unlock operations / hour

Transmitter ON 0.3375 seconds / hour

Transmitter OFF 3,599.6625 seconds / hour

Duty Cycle: $T_{ON} / T_{(ON+OFF)} \times 100\% = 0.3375 / 3,600 \times 100\% = 0,009\%$

9. Label Design transmitter

for ECE

Siemens VDO
5WY8213



10. Caution !

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.