

User Manual

of the

Siemens VDO

Radio Frequency Transmitter

type E60

General description of the RF transmitter E60

The RF remote control system E60 consists of a RF transmitter and a RF receiver mounted within the control unit. The RF transmitter is mechanically integrated in the head of the key. This transmitter is used to transmit an information for locking or unlocking the vehicle by an unidirectional RF transmission line for normal remote operation by pressing a button.

In general the following functions are provided:

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

Power supply

The transmitter is provided with 1 Lithium accumulator (VL 2020) that gives a power supply of +3V.

Buttons

There are three buttons which enable to lock and unlock the doors and to unlock the trunk.

During activation, the button is forced to the ground via a "pull-up" within the microcontroller.

Typical usage pattern (for Europe only)

10 lock/unlock operations in 24 hours with a transmission duration of 0.28 seconds

4 lock/unlock operations in 24 hours with a transmission duration of 6 seconds

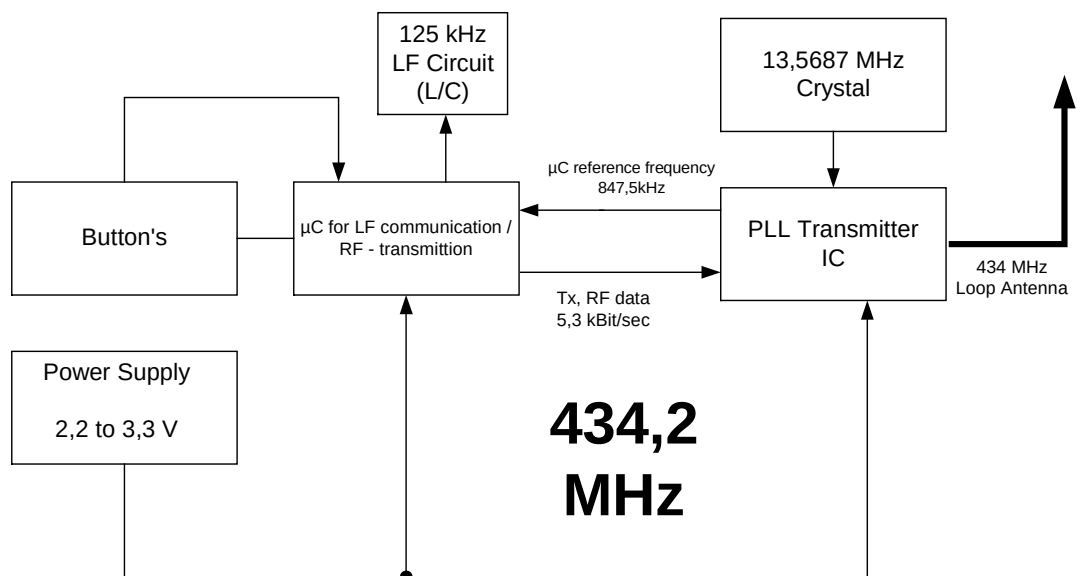
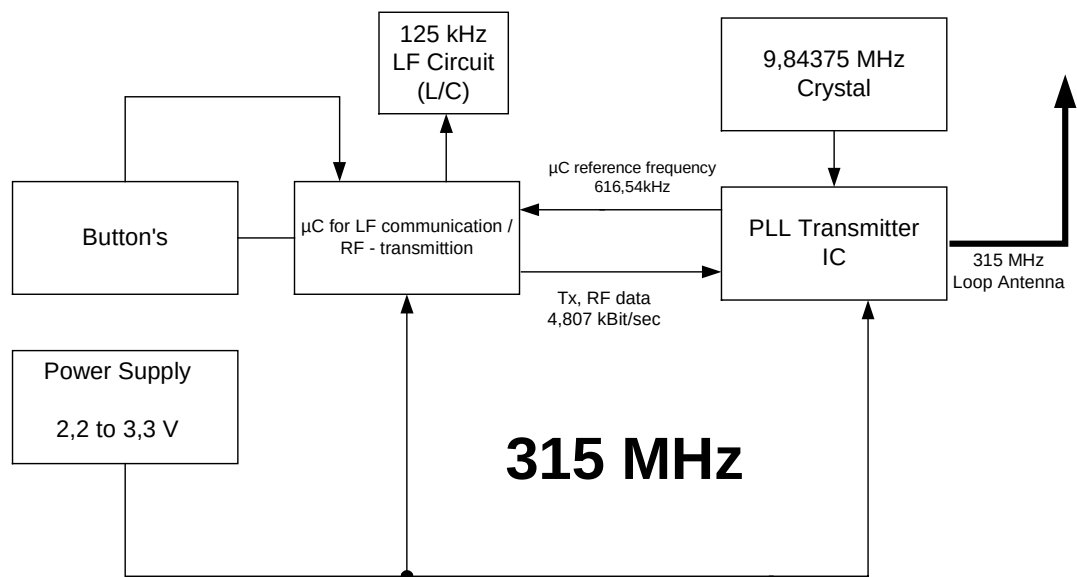
→ total transmission duration of 8.8 seconds within 24 hours

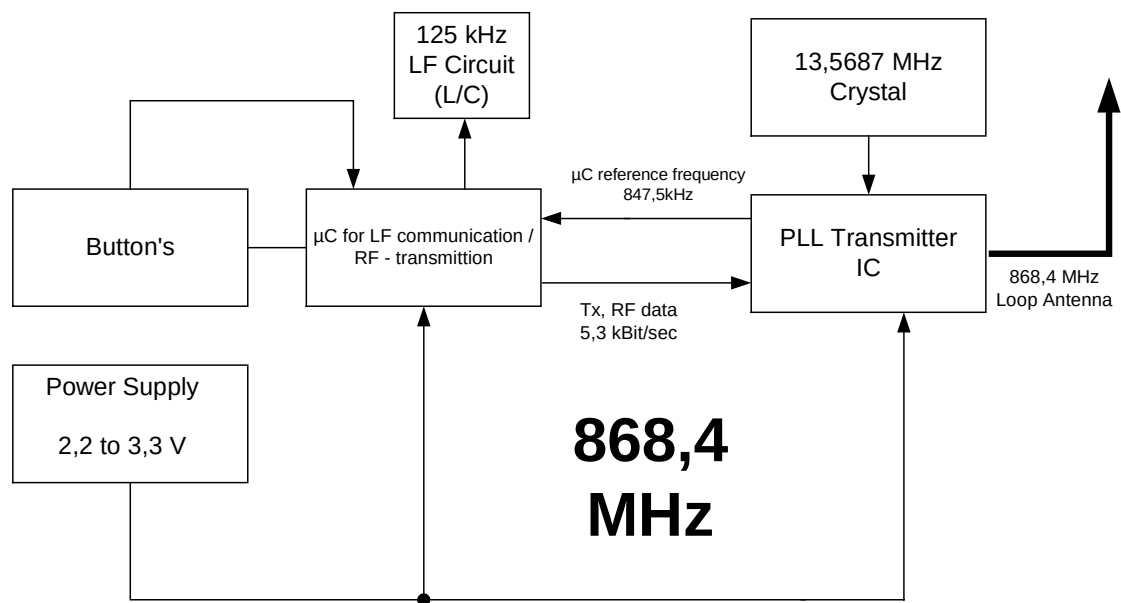
Transmitter ON	0.366	seconds / hour
----------------	-------	----------------

Transmitter OFF	3599.634	seconds / hour
-----------------	----------	----------------

Duty Cycle: $T_{ON} / T_{(ON+OFF)} \times 100\% = 0.366 / 3,600 \times 100 \% = \underline{0.01 \%}$

Block diagrams of the transmitter





Variants

Model	Description
5WK4 7991	868.4MHz variant for Europe
5WK4 7992	434.2MHz variant for Europe
5WK4 7993	315MHz variant for USA
5WK4 7994	315MHz variant reduced power for Japan

Technical Data

Carrier frequency model 5WK4 7991:	868.4 MHz $\pm$ 0.05%
Carrier frequency model 5WK4 7992:	434.2 MHz $\pm$ 0.05%
Carrier frequency model 5WK4 7993:	315 MHz $\pm$ 0.05%
Carrier frequency model 5WK4 7994:	315 MHz $\pm$ 0.05%
Output power model 5KW4 7991/2/3:	< 10 mW
Field strength model 5WK47994:	< 500 μ V/m @ 3m
Type of modulation model 5KW4 7991/2/3:	FSK
Type of modulation model 5KW4 7994:	ASK
Method of frequency generation:	PLL
Number of channels:	1
Power supply:	akku (VL 2020)
Type of akkku:	lithium
Transmission range:	<10 m

NOTE:

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

Label design**Europe: (433MHz + 868 MHz)**

Siemens VDO
5WK4 7991 or
5WK4 7992

**Japan: (315MHz)**

Siemens VDO
5WK4 7994

USA/CAN: (315 MHz)

Siemens VDO
5WK4 7993
IC: 267T-5WK47993
FCC ID:KR55WK47993

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept interference received, including interference that may cause undesired operation.