Technical description of the Wireless keypad

The wireless keypad is used for transmitting a data telegram which triggers off an action in a appropriate receiver.

The carrier frequency is equivalent to 40MHz. It is generated with T201 in a quartz-controlled oscillator. The end stage T202 operates at class a operation and is coupled to the oscillator circuit via the capacitor voltage divider C202, C203. HF power is tapped at the collector from T202 and fed to the antenna circuit ANT, C213, C214 via the π-filter C204, C205, L202. The coupling utilized via C206 (serves also for isolation amplification) promotes harmonic damping which is improved further by the high quality of the antenna circuit.

By means of the corresponding grounding surfaces, the HF component is designed in such a manner so that undesirable disturbances are avoided to a large degree.

The amplitude modulation of the end stage is produced at its emitter with the help of T203. This transistor functions as a Miller-Integrator (C207, C208, R208, R209) in order to limit the transmitter bandwidth.

The output stage amplitude is modulated at is basis via an RC combination. The modulating signal comprises a data word (48 bits) and a pause of 9 milliseconds. This enables the amplifier control to be built up in the receiver before the data word is evaluated. The pulse repetition rate is 500 Hz.
The data word is generated in microcontroller IC101. The code is defined in the external EEPROM IC102. The data word is transmitted whenever the correct four digit code has been keyed on the keypad (TA101 ... TA106). The transmitter is activated from its sleep mode whenever a key is pressed and is returned to it once a transmission has been completed.

The data word cycle serves to control LED101 ... LED106, which are used for lighting the keypad and for the purpose of operational control.
The typical power consumption is 38 mA.

The voltage supplied to the controller (4...6 volts) is generated by a stabilisation circuit, comprising T107, R105, D102. In sleep mode the controller is supplied via R106, LED107 and D101. Power consumption in this mode is approx. 2µA. The reset IC (IC103) holds the controller in reset mode when the voltage dips below approx. 4 volts. This ensures that the transmitter will not operate outside the controllers guaranteed voltage range.

Transistor T106 guarantees that there is no unacceptable level of voltage at any of the controller pins when a telegram is fed to the transmitter in OFF mode. The data telegram is also received via T106.

Wireless Keypad

Specifications

Frequency	40 MHz
Aerial	built-in ferrite-antenna
Radiated power	max. -6 dBm ERP
Modulation	AM (A1D)
Channels (digital)	4
Supply voltage	9V battery
Working current consumption	typ. 28 mA
Closed-circuit current consumption	typ. 2 µA
Size	62 x 165 x 26 mm (W x H x T)
Weight	170 g (incl. battery)