# TX - 5003 RCU - Remote Control Unit

## **TECHNICAL DESCRIPTION**

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3.2

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## 1. Description

TX - 5003 is a transmitter for short - range wireless data application. It is used to transfer the operator (driver) commands to the alarm unit installed in the car.

## 2. Unit Block Diagram



## TX5003 BLOCK DIAGRAM

#### 3 <u>Circuits description</u>

#### 3.1 Keyboard

Five keys which are used to control the alarm system.

3.2 <u>CPU</u>

The CPU reads the keyboard entries, builds the data message, controls the RF transmitter and the LED.

3.3 <u>Led</u>

RED LED indicates transmission.

#### 3.4 <u>RF Transmitter</u>

Used to create the transmit carrier frequency and to modulate it according to the data comming from the CPU.

The transmitter is based on one chip Temic U2741B.

An external crystal of 13.56MHz is used to stabilize the internal PLL which generates the RF frequency 433.92MHz.

The power amplifier ends with an open collector output that is loaded by a printed loop antenna. Magnetic loop antenna is a printed wire on the PCB which looks like a loop the trace is 40 mil which means 1mm width (1mil=1/1000")

The ASK modulation at data rate of 1Kbps is performed by the CPU using the ASK control line.

The CPU clock 3.39MHz is provided by an internal circuit which divides the crystal frequency by four.

3.5 Transmit pattern

It is a manually operated transmitter, pressing each one of the keys will be followed by this transmit pattern



It means that there are 3 transmissions of 80ms each. Transmissions will cease automatically after half a second (540 ms).

<u>Battery</u>

3.6

One 3V 190Mah lithium battery is used as the power source (CR-2032).

## 4. **Environmental Characteristics**

#### 4.1 <u>Temperature range</u>

Operating Temperature  $-10^{\circ}$ C to  $+60^{\circ}$ C Storage Temperature  $-10^{\circ}$ C to  $+65^{\circ}$ C

4.2 <u>Humidity</u>

The unit shall operate in an environment with up to 95% humidity, non-condensing at  $55^{\circ}$ C with testing criteria set forth by the IEC 68-2-30 document.

4.3 <u>Altitude</u>

10,000 Feet operating

#### 5. <u>Electrical Characteristic</u>

5.1 Operating Frequency

433.92 MHz

#### 5.2 <u>Output Power</u>

Less than 10 mW. Output power is fixed and can not be adjusted by the user

#### 5.3 <u>Modulation Type</u>

Amplitude - shift keyed (ASK).

5.4 <u>Type Of Emission</u>

A1D

5.5 Data Rate

1 Kbps.

5.6 <u>Power Consumption</u>

Standby - Less than 15  $\mu$ W Transmit - Less than 30 mW