General information about the MCT442 transmitted signals

The MCT 442 transmission signals are very similar to the MCT 425 smoke detector which was tested by Hermon Labs and certified by FCC in 2003 (FCC ID:GSAMCT425).

General information about transmitted signals and their duration:

1.1   RF transmitting

The detector will send the following messages to Visonic control panel:

·   CO gas alarm
·   Low battery
·   Tamper
·   Sensor E.O.L (end of life)
·   Sensor trouble
·   Supervision

The format will be according to Visonic proprietary Power-Code protocol (used in all MCT transmitters approved by FCC, such as MCT 302, MCT 234 and MCT 211) with minor changes.

1.1.1   Alarm message

All transmitters will initiate a message transmission when an ALARM condition is detected (CO Alarm, Tamper, Trouble or EOL). Alarm message will be transmitted in 3 message blocks separated randomly by a time that is generated using the ID Code as a seed.
Time between blocks = 300 ms+ (value of ID bits 0 to 2) * 60ms.

When an alarm is detected, the software should transmit the message without a delay. When a CO ALARM condition is detected, the detector will send message repeatedly up to 30 minutes, when CO concentration becomes lower than the threshold , the alarm stops.

1.1.2   Supervision and Low battery message

When a low battery is detected, a flag will rise. Flag will not reset until battery is replaced or program reset (Tamper switch). The battery status will be sent with supervision message (or alarm message). A supervision message is sent every 60 minutes from the last transmission (any transmission). A message will be transmitted in 1 message block.

1.1.3   Coding method

The coding uses a return to zero pulse width Manchester code. The transmitters are using key ON-OFF modulation.
The message starts with a start pulse after a pause of at least 2T (2.4 ms). The start pulse is of the duration of 1/3T (0.4 ms), followed by the message bits (see figure).
The end of the start pulse is used as time reference for the next bit, and the end of each bit is the reference for the next one. Bit "0" is starting at 1/3T from the end of the previous bit. Bit "1" will start transmission at 2/3T from the end of the previous bit. The transmission stops always at the end of the bit period.
When a CO Alarm, Tamper, Trouble or EOL condition is detected, messages will be transmitted in 3 message blocks.
When a SUPERVISION condition is detected, messages will be transmitted in 1 message block.

Each message block is composed of a burst of 6 identical messages, separated by 4 ms from each other - see figure below, the block time is 285 ms.
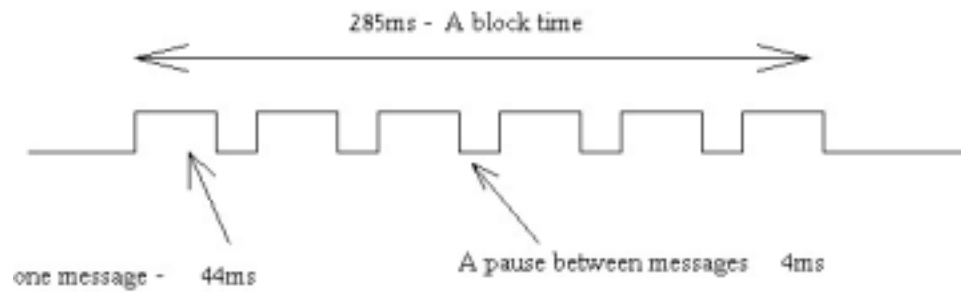
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