



## 1. Operational Description

The RF section of the PYR-3011G is based on a Melexis chip. The Melexis chip is a fixed medullas (32) PLL. Thus the 13.56 MHz Xtal is multiplied by 32 giving the 433.92 MHz carrier frequency. A balanced output is matched by a passive network that can deliver up to +8 dBm into 50 OHM to antenna matching network. A Monopole Wire antenna is used.

The u-Controller provides two signals. Namely a chip enable line that activates the Melexis and a data line that is used to OOK modulate the Melexis device A

## 2. Timing Requirements & Supervisory Transmissions.

When the PIR sensor detects activity (an "event") 5 identical **transmissions** of 21ms each are sent. The time between the end of one transmission and the start of the subsequent one being random. varies between 21ms and 84 ms. The total time of these 5 transmissions is 105ms. After every event, the detector switches into "sleep mode", for 2 minutes. In this period, no alarm event can be transmitted.

In addition there are "**supervision transmissions**" send if there was no activity event for 20 minutes. This means there are at least a minimum of 3 transmissions per hour (event or supervision).The Supervision

Format is identical to the event format (the total time of each **supervision transmission** consists of 5 transmissions which take up 105ms).

In the "worst case" there could be 3 supervision transmissions per hour, which would reach a total transmitting time of  $105\text{ms} \times 3 = 415\text{ms}$  (per hour), which is much lower than the 2 second FCC 15:231 limit.

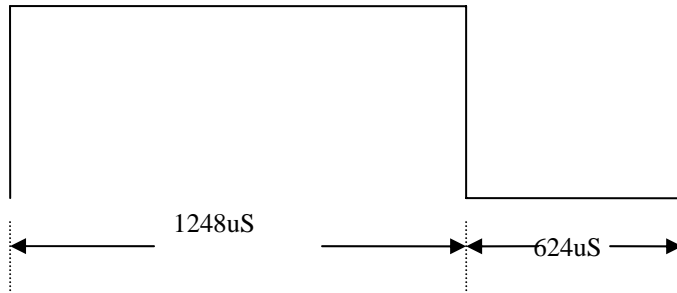
## 3. Functional Description & Instalation.

The PYR-3011G is a **ceiling mounted device**, usually it will be installed in a high position, on a ceiling, either overlooking and covering a door or entrance, or monitoring the room. The installer calculates the correct height and position/angle, so that the PYR-3011G may ensure the best covering of the space. If the room is big, or is a combination of 2 or more spaces, maybe 2 or more PYR-3011G units may be used in order to secure the space.

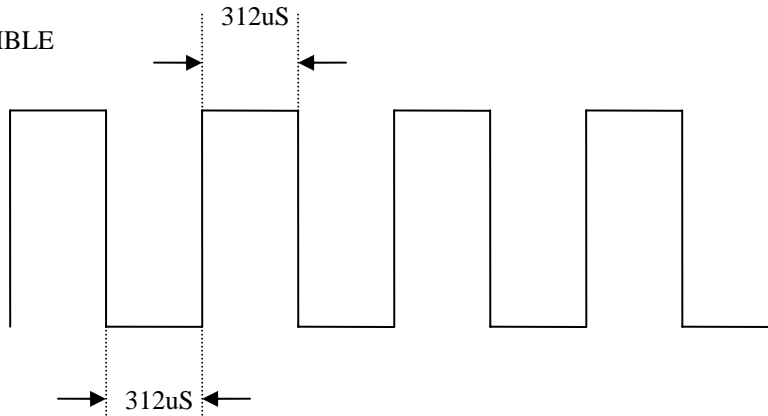
On page 2 there is a transmission format scheme. The transmission consists of preamble (312us on & 312us off), a Start bit 1024us on & 624us off and 6 BYTES DATA (48bits) in Manchester formal 208us on, & 208us off. All together make 21.842ms frame.

With the random time of 1 to 4 frame we get 21ms to 84 ms between sequence frames.

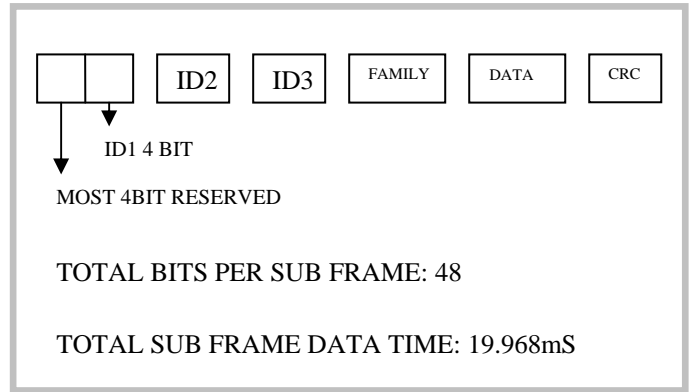
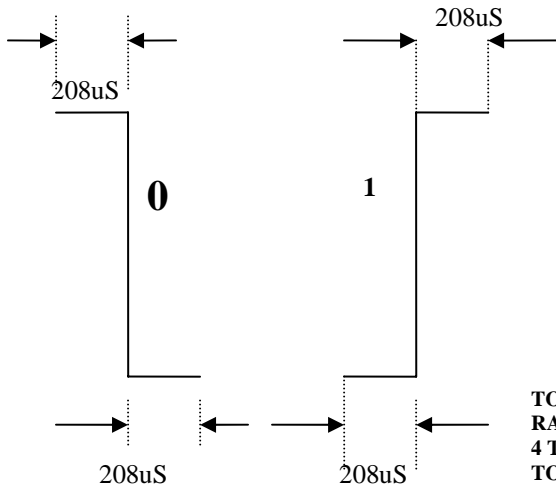
1. START BIT



1. PREAMBLE



1. DATA



TOTAL SUB FRAME TIME: 21.842Ms  
 RANDOM SUB FRAMES  
 4 TIME SLOTS  
 TOTAL SUB FRAMES IN SUPER FRAME: 5

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